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ORIGINAL ARTICLES.

MEDICO-LEGAL ASPECTS OF CRANIAL AND HEART WOUNDS.¹

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Is it possible for an individual, with suicidal intent, and in quick succession, to inflict a perforating shot wound of the head and another of the chest implicating the heart? Or, reversing the proposition, Is it incredible that a person, bent on self-destruction, can, with his own hand, shoot himself in the heart, and in the head? These questions have a medico-legal bearing of no small import, and have been suggested as the subject of the present paper, by a murder committed during the spring of 1886, in the town of Newport, Rhode Island.

A colored man, long a resident of Newport, well known both to the permanent inhabitants of, and to many of the transient visitors to, this place of fashionable resort, was found one morning in his house dead under the breakfast-table, having in his mouth some food unswallowed, and with a bullet wound in his head and another in his chest. A coroner's jury, after holding an inquest, brought in a verdict of suicide, and the body, under this finding, was interred. Some weeks later, through the suggestion, I believe, of one of the local physicians, that it was impossible for the deceased to have inflicted these double wounds with his own hand, both involving vital organs, the authorities ordered the body to be disinterred and the inquest to be reviewed. The autopsy revealed a perforating shot wound of the skull, the pistol ball (22 calibre) having entered the right parietal bone about two inches above and anterior to the ear, making a clean-cut perforation of the skull and lodging in the posterior part of the left half of the cerebrum, having passed from left to right, and from before backward. Another ball had penetrated the thorax at a point three inches to the right of the left nipple, and two inches to the left of the median line. "The ball," as was stated, "was found to have passed through the left ventricle of the heart, entering the base and emerging at the apex." It is probable that the exact point at which the ball entered the chest was not accurately noted, as it would have been an anatomical impossibility for the missile, entering the thorax at the position stated, to have traversed the heart from base to apex, the base of the organ being on a level with the second costal cartilage.

The finding of the coroner's jury, based on the evidence developed by this second examination, was murder by some person or persons unknown.

Suspicion now fell upon the son-in-law of the dead man, who lived in the same house with his father-in-law. This colored man, named Dorsey, was a graduate of Lincoln University, and had attended two courses of instruction in the Medical Department of the University of Pennsylvania. He was immediately arrested, imprisoned, and held to answer for the murder. He stoutly denied any participation in, or knowledge of, the crime, and as the young man had, both during his student life at Lincoln University and at the Medical Department of the University of Pennsylvania, borne a remarkably excellent character, and as no possible or sufficient motive, at the time, could be divined for such an act, many of his friends were disposed to regard him as innocent. These convictions were strengthened by the rumor that Burton, the murdered man, was hopelessly embarrassed financially, and had, I understand, on the very morning of his death, a note at maturity, and without the means to cancel it.

At the trial of Dorsey the prisoner, five medical experts were examined on behalf of the prosecution. One witness testified that either wound must have caused nearly instant death; or, if the brain received the first ball, such a degree of unconsciousness would have ensued as to incapacitate the victim for inflicting the second wound.

A second witness declared that the wounds were entirely inconsistent with the idea of suicide. The three remaining witnesses testified that if not more than one minute elapsed between the shots, the case was one of homicide and not suicide. Such were the answers as given to me by the prosecuting attorney in the case.¹ Entertaining a different view from that expressed by the medical experts, Dr. William Hunt, one of the surgeons of the Pennsylvania Hospital, and myself, at the urgent solicitation of the friends of the prisoner, went to Newport on the last day of the trial. We arrived at the place in the night, expecting to go on the stand the following morning, but in the meantime the trial was brought to a sudden termination by the confession of the prisoner's wife, in which both her husband and herself were concerned in the murder; and now the question recurs, Are such wounds as those described entirely inconsistent with the idea of suicide?

If the testimony given by the medical experts in the case just detailed, is to pass unchallenged, then it follows that an innocent person arrested and tried for murder in a case where a shot wound of the head

¹ Since this paper was written I have had the pleasure of meeting one of the medical experts in this trial, Dr. Richardson, of Boston, who informed me that the evidence given by himself and others of his colleagues, as to the wounds being homicidal and not suicidal, was based upon certain facts brought out in the case which rendered the former more probable than the latter.

¹ Read before the American Surgical Association, May 11, 1887.

and of the heart existed, might be condemned to death, even though the other evidence did not raise the connection of the prisoner with the deed, above a mere probability. In examining this question I shall assume that it is possible for a shot wound of the head and of the heart to be suicidal, and as to precedence of injury, the head or the heart, it is not essential to the case.

First, however, let us consider the subject in the order of a shot wound of the head and of the heart. There are two conditions which would disqualify an individual bent on self-destruction from inflicting the second wound in the chest, namely, the suspension or loss of consciousness and paralysis, partial or complete, of one or both upper extremities. The loss of consciousness, in a given shot wound of the brain, is not due to the mere passage of the missile through cerebral matter; you can thrust a finger, a trocar, or a knife, into portions of the brain, without at all affecting either sensibility or consciousness. It is due generally either to fragments of bone carried before the vulnerating body and buried into the cerebrum, to some large vessel or sinus being opened, causing a profuse hemorrhage, or to transmitted vibrations resulting from the impact of a ball against the skull, thus causing a molecular disturbance of its contents, and momentarily deranging the orderly operation of the intellect. Indeed, I believe that the sudden suspension of consciousness in many of these shot injuries of the head is due more to this contact of the missile with the cranial wall, than to its passage through the brain.

It is common to see a person fall to his knees or prone upon the ground when struck upon the head by a pebble or a fragment of a stone, but in an instant he is again on his feet, the fall does not necessarily imply loss of consciousness, though it does mean an interruption to muscular coördination. Every surgeon can recall instances of the most dreadful injury to the skull and brain without destroying the conscious volitions of the patient.

During the winter of 1885 Dr. William Hunt and myself were called to see a man who had been run over by a street-railway sweeper in the night. He was seen to arise immediately after the accident, and walk to his house on Spruce Street, two squares from the scene of injury. Opening the door with his deadlatch key, he passed up stairs to his room on the second story and went to bed. The family in the morning found him unconscious. On examination portions of the parietal and temporal bones were found driven deeply into the brain.

A prominent physician of Philadelphia was run over by an unmanageable horse, and dashed against the corner of an iron pillar, causing a frightful compound comminuted and depressed fracture of the frontal bone, tearing the membranes of the brain, and injuring its substance. I applied the trephine in two places, and removed twenty-seven fragments of bone, and yet, though unable to stand, neither motility nor consciousness was destroyed, as the patient gave intelligent instructions in reference to being carried to his home.

I recall another case of still more extensive damage to the skull; one in which, by the bursting of a

fly-wheel, quite one-half of the frontal bone was carried away, and with it a considerable portion of the prefrontal lobes of the cerebrum. Only for a few moments was the man dazed, and ultimately made a good recovery.

The famous case, occurring in the practice of Dr. Harlow, and figured in some of the books on surgery, is another one in point. A bar of iron having entered the face below the zygoma, passed through the skull, emerging near the vertex, without destroying personal consciousness.

A private,¹ named Solomon, Co. G., New Jersey Volunteers, received a shot-wound at the battle of Bull Run. The ball entered the skull below the tip of the left ear; the man fell, but retained his senses. The surgeon passed a probe two inches into the brain in the supposed track of the ball.

In a letter received recently from Sir William MacCormac, of London, the writer says that he thinks it entirely within the bounds of possibility for an individual, with suicidal intent, to shoot himself in the head and in the heart, or in the heart and afterward in the head, and furnishes the following cases, which render such a statement entirely feasible. The first was that of a suicidal case under the care of Mr. Hulke, where the bullet traversed the head from temple to temple, but did not emerge. The patient lived fourteen days, but did not lose his consciousness until a short time before his death, and was fully able to inflict any other wound had he been so disposed. In a second case, under the care of Dr. Smith, a bullet traversed the skull from temple to temple. The patient not only preserved his consciousness, but finally recovered.

A soldier at the Battle of Pultuska, in Poland, as related by Hennen, received a remarkable wound of the brain. A ball carried away the bayonet of a musket, which entered the right temple of the man, two inches above the orbit, and passing backward and downward, emerged through the maxillary sinus of the left or opposite side. The soldier, aided by his two comrades, tried in vain to withdraw the weapon; the Surgeon-Major, M. Fordeau, made a similar attempt and failed, when at length the task was accomplished by a strong soldier placing the man's head on the ground and his foot upon the head, while traction was made on the missile. The patient ultimately recovered, and as it is distinctly stated that he joined his own efforts with those of his fellow soldiers in their attempts at extraction, it follows that neither consciousness nor motility was lost.

The *second* disqualifying condition for inflicting another wound after one in the head is paralysis.

The very great advance made in the last few years in regard to the functions of the brain and the topographical relations existing between the exterior of the cranium and definite cerebral convolutions, enables us to locate with considerable accuracy intracranial lesions from the symptomatic phenomena which may be present. The local areas or centres of muscular power have, for the most part, been clearly established.

It will, I think, be conceded that so long as the

¹ Surgical History of the War, Part I.

middle portion of the ascending frontal and corresponding portion of the ascending parietal convolutions remain uninjured, the power to use the arms is retained, and the same may be affirmed of the lower extremities, so long as the upper end of the ascending parietal convolutions and that part of the posterior parietal lobule immediately behind remain intact. The motor centres are all grouped about the fissure of Rolando, and unless a shot or other missile trenches on these special regions, motility remains; though it may, after a time, be lost by the extension of hemorrhage or from inflammatory products. So common is it to see shot and other wounds of the brain occurring without material impairment of muscular motion, that I do not think anyone will challenge the statement. Indeed, the cases already cited in support of personal consciousness after wounds of the brain, are, most of them, equally pertinent when applied to the maintenance of motility. Nor does the fact that a man falls, or is unable to rise after a perforating shot wound of the skull, prove that the power to use his arms is lost. The missile may damage the leg-centres and not affect the arm-centres.

Let us next change the proposition by changing the order of wounds—the heart wound taking precedence.

The unconsciousness and loss of muscular power which follow wounds of this organ, are due to hemorrhage; the vessels of the brain and other nerve centres being suddenly emptied of their blood, fatal syncope ensues; hence wounds of the heart are generally considered to be instantaneously fatal. Yet there are many, very many, exceptions to the rule. Fischer, in an analysis of 452 cases of wounds of the heart, gives no less than 35 recoveries; 72 were shot wounds with 12 recoveries. Dr. Purple, in his collection of heart wounds, states that in 42, 12 of which were shot wounds, death did not take place immediately.

While it is true these statistics are not altogether free from criticism, yet they possess an intrinsic value in establishing the general statement, that these injuries are not necessarily, or immediately fatal in all instances. The following cases culled from different sources will go to sustain the object most needful for my present purpose. In the *Surgical History of the War*, Part I., pages 530 and 531, there is recorded the case of Private Lanning, Co. A, Pennsylvania Volunteers, who was shot in the chest, the ball entering the right auricle. The patient persisted in sitting up, and walking about his room. He lived for fourteen days.

The same author mentions the case of a private named Wright, Co. C, Fourth Regiment of the Veteran Reserve Corps, shot at Quincy, Ill., and who lived forty-six hours. The ball passed through the lung, the left auricle, the auriculo-ventricular septum, and the left ventricle.

A private, Charles T., 1st Maryland Potomac, Home Brigade, was shot in an affray with the Provost Guard at Frederick. The ball passed through the left ventricle and right auricle. Death did not follow for twelve hours.

In two instances given by Jamain, the patients lived six months after a shot wound of the left ven-

tricle. Ferrus mentions a case in which a man lived twenty days with a skewer through his heart.

Sir William McCormac writes me that Mr. Durham had a case of bayonet wound of the heart in which the patient survived fifty-six hours. The wound implicated both ventricles, the septum, and auricle, and the man walked some yards after receiving the injury.

Dr. Andrews reports a case under the care of Professor Bergman, of Dorpat, where the injured man travelled fifteen miles to Dorpat, and finally recovered.

In the *Lancet* of January, 1879, a case is reported where a man received a perforating shot wound of the left ventricle which did not prove fatal for fifty-four days, the patient having in the mean time returned to his work.

In Rankin's *Abstract of Medical Sciences*, vol. 31, page 165, Mr. Jackson reports a case of a man who received two shot wounds, one of the balls passing through the right ventricle. He lived for three and one-half hours, and was able in the mean time to make a deposition and name his assassin.¹ A case of assassination was tried before a British court in India. A native named Kadir was shot through the heart June 2, 1873, while lying on his cot. It was stated in evidence that the victim, after receiving the fatal wound, recognized and denounced his murderer, a man named Meera Khan. On the strength of this testimony the assassin was found guilty. An appeal was made, and the case carried to another court, and the verdict reversed, on the ground that death must have been instantaneous. Mr. W. Curran, Brigade-Surgeon, in commenting on this case, stated that the decision of the former court was, in his judgment, the more correct, as in his own personal experience shot wounds of the heart were not necessarily immediately fatal.

In the *Lancet* for April 9, 1887, page 725, there is reported the case of a groom, who, while adjusting his master's foot in the stirrup accidentally discharged a pistol which was in the holster of the saddle. The ball entered the chest, on the left side two and a half inches to the right and one-half inch below the nipple, and pierced two chambers of the heart. He survived the injury fifty-two hours.

On May 11, 1812,² Mr. Percival was shot by Belingham in the heart. At the trial Mr. Smith testified that after the firing he saw the murdered man rush hastily through the crowd toward the place where he was standing, looking first in one direction and then in the other, and, after making a few steps more, reeled and fell to the ground.

The tragically affecting case of the Duke de Berri is to the same point. While leaving the theatre in company with the Duchess, he was approached by a man, who, placing his hand on the shoulder of his victim, drew him to his side and plunged a dagger into his chest which pierced the heart through, making a wound of some inches in length. The Duke lived until six o'clock in the morning, in the mean time begging that his assassin might be forgiven, and also speaking words of comfort to the Duchess.

¹ *Lancet*, April 9, 1887, page 725.

² *Ibid.*, April 2, 1887, page 674.

I may also mention the case of a woman brought into the surgical ward of the Pennsylvania Hospital during my term of service. The left ventricle had been pierced by a butcher's knife. She survived two and three-quarters of an hour, and for at least one-third of that time her mental condition was perfectly clear. Can anyone doubt that in most of the cases cited, these patients, had they been so disposed, could have inflicted a shot wound of the head?

And now, third and last, are there any instances in which a suicide has actually inflicted the two wounds which I have been considering. Dr. Macleod, Professor of Surgery in Glasgow University, Scotland, furnishes me the case of a suicide which came directly under his observation. A student shot himself in a water-closet, the ball entered the head. Finding that he had not accomplished the work of self-destruction, he went to his bedroom along a passage and shot himself in the heart. He lived only a few moments after this last injury. Prof. Macleod entertains no doubt in regard to the feasibility of these double wounds being self-inflicted.

In turning to the records of the Coroner's physician, Dr. Formad, I am able, through the kindness of this efficient and careful officer, to furnish the following cases:

1. A policeman shot himself, first through the head, the ball, entering the right temple, was found lodged in the cranial vault on the opposite side. A second shot was fired into his chest, the bullet cutting the right side of the heart. Death from internal hemorrhage followed in about five minutes. This was done in the presence of witnesses.

2. A boy aged nineteen, inflicted four shot wounds from a revolver on his own person. The first bullet entered the forehead, and after taking a circuitous route, lodged about the middle of the left temporal lobe. A second ball was fired into the chest, and passing through the sternum, cut through the left ventricle of the heart, on a level with the mitral valve. A third shot passed into the abdomen, and the fourth into the neck. Death ensued from pericardial hemorrhage.

3. A grocer was found dead in his room, having locked the door. A pistol was still clutched in each hand; one bullet had passed through the brain, and a second through his heart.

4. A man committed suicide in the Park, one bullet entered the brain, and a second the chest. In all these cases the suicide was not assumed, but proven beyond a reasonable doubt.

From the foregoing facts which are thus hastily thrown together, I think I am at liberty to draw the following conclusions:

First. That it is possible for a ball to enter the brain without destroying consciousness, though it may for a few moments cause some mental confusion.

Second. That a ball may traverse the brain without causing muscular paralysis.

Third. That a suicide may, with his own hands, if so disposed, first shoot himself in the head, and within the lapse of a minute inflict a similar wound on the heart, and that there are a sufficient number

of cases on record to establish the feasibility of the self-infliction of the two shots; and

Fourth. That a suicide may first discharge a ball into the chest, wounding the heart, and immediately after send a second ball into the brain.

THE MORTALITY OF PRIMARY LAPAROTOMY IN CASES OF EXTRAUTERINE PREGNANCY; ITS CAUSE, AND THE DIFFICULTIES WHICH LIE IN THE WAY OF REDUCING IT.

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UNDER the present accepted classification, a laparotomy to be entitled to the term *primary*, in a case of ectopic gestation, must be performed not only while the foetus is living, but after it shall have reached a viable period of gestation; in other words, when it can be undertaken in the interest of two lives. When the foetus is dead, it may be a few hours or a few days, the gravity of the operation will be unchanged, but the classification will be; as the laparotomy is then performed in the interest only of the mother, it is to be classified as a *secondary* operation. The period of limit attached to the primary operation, and the functional activity of the placenta, must always render it one of great gravity. But the time for the secondary operation is not limited, except as to when it may commence. It may be performed (but very unwisely) a few hours or days after foetal death; or it may be postponed for months, or years, until it becomes a matter of necessity for the saving of life. Operations after three months will save a large proportion of mothers; but during the first month are, on the contrary, very largely fatal, the exceptional cases being late in the month, and very slow in recovery.

This is not according to the classification (1860) of Mr. Jonathan Hutchinson, of London,¹ who made the term *primary* to apply to all cases in which there had not yet formed an abscess opening through the abdominal wall; and *secondary*, where such an opening had already formed. In his tabular record,² he gave fifteen cases of what he denominated *primary* with six recoveries, but did not introduce one case of what is now regarded as the *true primary* laparotomy, although at the time of writing (1864) his second paper in Holmes's *Surgery*, there had been performed five of these operations, with the saving of three children.

The late Dr. John S. Parry, of Philadelphia, wrote in 1875, a work upon extrauterine pregnancy, in which it is evident that he prepared his table of twenty primary operations with six recoveries, after the classification of Hutchinson. This will account for the fact, as noticed by Litzmann, Lusk, and others, that there was not a primary case, as we understand the term, among the six saved. At the time Dr. Parry published his work there had been eight true primary operations, saving one woman

¹ Medical Times and Gazette, July 21, 1860, page 56.

² Holmes's Surgery, 1864, vol. iv. p. 514.

and four children, the successful one being then of very recent occurrence, and probably unknown to him. It is very evident that our accepted classification has been introduced as a matter of necessity. The operation for the removal of a decomposing foetus after the spontaneous discharge of an abscess through the abdominal wall is of very ancient date. That of laparotomy for the removal of a dead foetus where the abdominal wall is sound is of more recent introduction, dating back to the year 1594. What is now regarded as the primary operation was first performed, so far as can be ascertained, in Berlin, in 1813, and has in seventy-four years been executed twenty-five times, with twenty-three deaths, and a loss of thirteen children.

We are especially interested in this operation just now, because Dr. Joseph Price, of Philadelphia, recently performed it in Camden, New Jersey, the child living four hours and the mother fourteen days; the death of the latter resulted from hemorrhage. This operation has been performed only twice in the United States, in all her history, and both of the cases proved fatal. One other operation it is true was performed, in 1870, by Dr. E. Paul Sale, of Aberdeen, Mississippi, but in this case the operation was followed by the Cæsarean section thus complicating the removal of the extrauterine foetus by an intrauterine one. The woman died of septicæmia, and the children, one at six months, and the other at twelve months, of measles and broncho-pneumonia respectively.

The twenty-five operations upon record were performed by twenty-four operators, only one, Dr. Hildebrandt, of Königsberg (1882), having had two cases. Of the twenty-three women lost, only three lived longer than that under the care of Dr. Price, viz.: Case 2, under Dr. Novara, of Italy, thirty-three days; Case 3, Dr. Matfield, twenty days; and Case 16, Prof. Litzmann, Germany, sixteen days. Seventeen of the women died before the completion of the fourth day, and of this number twelve did not live through the second day, seven of them surviving twenty-four hours or less. Thirteen children perished within fifty hours or less after their extraction. In six of the twenty-five cases, peritonitis existed at the time of the operation, and in three of these rupture of the cyst had taken place. Four other women were regarded as *in extremis* when operated upon.

Causes of death. Hemorrhage is the most frequent, and may occur by itself, or be complicated by the existence of peritonitis, septic infection, or both. Heart-clot is probably a more frequent complication than has been noticed. Twelve women died of hemorrhage, alone, or complicated, as mentioned. Peritonitis alone, or mainly, caused death in four; septicæmia in two; heart-clot in one; and in four death was attributed to collapse, or to shock and exhaustion.

Location of the placenta. In about one case out of six or seven, the placenta will be found implanted upon the abdominal wall. When this is central, and in the line of incision, death soon results. The placenta may also be found in the Douglas cul-de-sac,

as was the case in the two operations under Hildebrandt. It may cap over the superior strait, as in the case which recovered under Mr. Jessop, of Leeds (Case 8), in 1875. It may be located over the iliac fossa; be attached to the uterus and its appendages; be implanted over the lumbar vertebrae, or kidneys; be attached to the small intestine, stomach, or liver, and has even been found within the uterine cavity. In all of the locations except the last, there can be no contraction of the placental basis after the foetus has been removed, and the process of exfoliation must produce more or less hemorrhage. To remove a placenta from its attachment to the viscera during the operation, must be necessarily fatal, and it has not been attempted in this class of cases, so far as known, for forty years.

The primary and secondary operations are performed in exactly the same way, from the taking up of the knife, to the suturing of the abdomen, and the difference of gravity in the two cases is due to the danger to be apprehended when placental separation begins, being infinitely greater in the former, because of the open condition of the placental sinuses. Thus far, the mortality by the primary operation has been at least ninety-two per cent., and will foot up higher than this, when the cases of 1883, 1884, and 1885 come to be reported.

The secondary operation, when performed not earlier than three months after foetal death, has of late years been one of comparative safety, as there is only a moderate risk of secondary hemorrhage, and septic infection can be largely controlled by abdominal irrigation. Much will depend upon the location of the placenta in determining the final result. This will account for some patients recovering when operated upon only a month after the death of the foetus, while others have died of hemorrhage after four months delay. The immunity under the secondary operation is due to the changes that take place in the placental circulation after its functional activity ceases.

If the primary operation is ever to be one of diminished risk, it must be made so by one of two methods: 1, the ligation of the vessels that supply the placenta and its removal with the cyst, as was done in Case 20 (1881), by Dr. August Martin, of Berlin; or 2, by an antiseptic treatment of the placenta, to prevent its decomposition and separation. If the placenta is implanted over the iliac fossa, a solid immovable base, this experiment might be tried: tie the cord and cut it off close to the placenta, wash out the cyst cavity with corrosive sublimate water, turn in the cyst opening so as to bring the serous surfaces in contact, and stitch them in apposition by the uninterrupted suture of Apolito or Gély, and finally close the abdominal wound without drainage. In Case 11, under Dr. Gervis, of London, the placenta was thus located, and the operation performed in the usual manner, resulted in death from hemorrhage in fifty-six hours. The antiseptic plan cannot do worse than this, if it should entirely fail to maintain placental vitality and adhesion. This plan can only be tried crucially, in a case where there has been no preceding peritonitis, rupture of cyst, sepsis, or hemorrhage.

THE POLAR METHOD OF ELECTROTHERAPY IN GYNECOLOGY.¹

APPLICATION, DOSAGE, AND MEDICATION.

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(Continued from page 542.)

III. DOSE AND MEASURE.

For proper *dosage* the following elements are required in

GALVANISM.	FARADISM.
Milliampère intensity of current.	Strength of current by distance between primary and secondary coil.
Time of application, by which quantity of electricity used is determined.	Time of application.
Square surface of dispersing electrode, for record of density.	Number of interruptions. Size, shape, and material of electrode.
	Tension and quality of the current as determined by the length and thickness of the wire in the secondary coil.

Other measures by which all details of the application are recorded with precision for scientific research, though not necessary for simple treatment, are the following:

GALVANISM.	FARADISM.
Resistance of the tissues and electrodes in ohms.	Resistance of the tissues and electrodes in ohms.
Density of the current. Quantity of electricity used expressed in coulombs.	
Electro-motive force of the elements used in volts. Ampère capacity of the elements used in ampères.	Electro-motive force of the elements used in developing the current and their ampère capacity in ampères.

The galvanic current, thanks to its commercial value, can now be measured and dosed with the utmost precision, and all its practically important characteristics can be more accurately recorded than those of any other medicinal agent. For all practical purposes—I am speaking only of the application of galvanism by the polar method, in gynecological practice—we need only know the *intensity* of the current in milliampères, the *time* of application, and the *site, nature, and size of the electrodes*.

The *resistance* of the tissues in ohms is not practically necessary, as in gynecological practice we know that the resistance varies between 60 and 800, usually between 200 and 300 ohms, and this is more closely indicated by the location of the poles, as the physician who applies electricity judiciously and scientifically should know about what the resistance of certain parts generally is.

The *density* of the current, however important in other methods or in other localities, varies but little in gynecological treatment by the polar method, as it is practically the same in all but the intrapolar applications, as, for instance, to the ovaries. The active pole being always small, either stylet or ball, the effect sought in its immediate vicinity differs

but little whether the current is dispersed upon a large or small plate. Still I have named the location and size of the dispersing electrode among the elements necessary for dosage and record; by means of this the density can be calculated, though I have included it, not for this purpose as much as for the convenience of the physician to facilitate repetition.

The practically important elements for record and dosage of faradic currents are the electro-motive force of the generating element, with the distance between the coils, the character of the secondary coil, and the number of interruptions per minute; but this will only be possible with perfect standard instruments, which are not yet made in this country, so that this is as yet impossible, and the utility of this form of electricity is very limited, on account of the imperfect apparatus in the hands of the profession.

The determination of the milliampère intensity of a faradic battery is more than useless, it is deceptive, as the ampère intensity carries no conception of the true force of this kind of electricity, which is produced by induction, and by frequent making and breaking of the current.

If passed through a coil of long wire the milliampère intensity is greatly reduced, and yet the effect of the current is increased. I mention this only to prevent entanglement by the erroneous ideas advanced by some.

Measure and Dosage of Galvanism.

The milliampèremeter. Upon the use of this instrument, absolutely essential to successful practice, the present advance in gynecological electrotherapy is based. The instrument may be either horizontal (tangent) or perpendicular, and for gynecological purposes should indicate from 1 to 250 milliampères. Whilst the neurologist may need one with more exact reading from 1 to 10, enabling him even to distinguish one-half or one-quarter of a milliampère, the gynecologist must have wider scope, and, as a rule, exactness to a single milliampère is not essential; the intensity usually employed is from 10 or 20 to 60 or 80 milliampères; in rectal, urethral, and vesical applications, the want of an instrument plainly showing fractions of a milliampère is sometimes felt, as two or three milliampères only are used, but in general use this is unnecessary.

The high intensities are needed for purposes of electrolysis or cauterization.

Time of application is noted in minutes, and from this the quantity of electricity applied in the entire séance can be determined in coulombs, the unit of quantity.

For ordinary purposes the record of time only is needed. The importance of this element in determining the effect is self-evident.

Density. Square surface of dispersing electrode. This should be recorded to facilitate repetition, and, if desired, to determine the *density* of the current, which is of extreme importance in certain methods of application.

To simplify record, and further an understanding, it is very desirable that practitioners should adopt standard sizes of this important instrument; uni-

¹ Read before the St. Louis Medico-Chirurgical Society.

formity in size and even in conducting powers of dispersing electrodes is essential, as it is difficult to calculate with ever-varying factors, but if a standard be adopted this difficulty is obviated.

The three sizes I use I would suggest as most convenient for gynecological purposes:

No. 1. 59 square inches surface ($6\frac{1}{4}$ by $9\frac{1}{4}$ inches) for higher intensities.

No. 2. $28\frac{1}{2}$ square inches surface ($4\frac{1}{2}$ by $6\frac{1}{4}$ inches) for intensities from 20 to 60 milliampères, still applicable to the abdomen without difficulty.

No. 3. $15\frac{3}{4}$ square inches ($3\frac{1}{2}$ by $4\frac{1}{2}$ inches), easily manipulated and readily slipped under the clothing upon any part of the abdomen, can be used for all milder applications, and even with 40 milliampères if the patient be not too sensitive and the resistance low.

Resistance of the tissues and electrode in ohms. The ohm is the unit of resistance, and is measured by the rheostat. Upon the resistance of the tissue depends the intensity of the current possible and necessary.

The greater the resistance the less the possible working intensity of the current, but the greater the electromotive force and ampère capacity of the generating battery required. Hence the possibility of successful application of galvanism in gynecological practice; the resistance offered by the tissues is small, usually 200 or 300 ohms; and under these circumstances the patient can stand 100 or 200 milliampères; in percutaneous applications, as required in neurological practice, the resistance of the tissues is rarely as low as 1000 ohms, often 5000 and 10,000 ohms, and 5 milliampères is then a great intensity requiring strong battery force. In neoplasms and effusions, in which the highest intensities are required, the resistance is sometimes reduced to as low as 40 ohms, and at most it is never above 600 or 800 ohms. The resistance of the moist tissues is very low, and the nearer the electrodes can be approached to each other the less it is, as the amount of tissue is diminished.

The greatest resistance is offered by the dry epidermis, and in gynecological applications this is only to be encountered once, and not in all treatment; then the epidermis on the abdomen is not so thick and hard, and the surface is so located that it can be well saturated. When both poles are intrapelvic the resistance is naturally lessened, and very little ampère capacity of battery is required. The resistance in these applications is also lessened by the approximation of electrodes, the one in the vagina, in the uterine cavity, or in the tissue, comes very near to the other, over it upon the abdomen. Most effective, however, is the succulence of the tissues in reducing resistance, and these tissues, with the exception of the abdominal walls, possess low electrical sensibility. For these reasons the use of effective currents, inapplicable in other parts, is possible in the pelvic viscera. This is best explained by an example: In an electro-cauterization of the endometrium, with one pole, the sound, in the uterine cavity, and the other, the small plate, upon the abdomen, I can use 30 milliampères with but little pain, and may need 6 elements to develop these 30 milliampères through a resistance of 250 ohms. If I place the same small

abdominal electrode on the back of the hand, and in place of the uterine sound, at the other pole, a round electrode in the palm of the hand, I will find a resistance of 3500 ohms from palm to back of hand, and I will need 24 of the same elements to obtain 4 milliampères, and these 4 milliampères will cause as much burning as the 30 milliampères through less resistance, and in a more sensitive spot.

For an exact determination of the resistance of the tissues, the resistance of the electrode must be noted. That a knowledge of the resistance of the tissues under treatment is necessary, is evident from the influence of this factor upon the result. For general purposes of gynecological treatment, however, it can be dispensed with, as this resistance varies within known and narrow limits; but for other applications it must be noted, as the variation is very great, and so much depends upon it.

I myself have recorded the resistance in the cases treated, for the sake of study and observation, and believe that this should be done for the purpose of scientific observation, that rules of practice may be developed.

It is to the low resistance and slight degree of electro-sensation that gynecology owes the possibility of successful electrotherapy; 250 milliampères can be applied for electrolysis in a uterine fibroid, because the resistance may not be over 60 milliampères, and this can be accomplished without excessive pain, or the use of great battery force; whilst 250 milliampères sent through the body from hand to hand would cause instantaneous death; and no battery—nothing but a dynamo—sends such a current through a resistance of 15,000 ohms (at which I roughly estimate the tissues from hand to hand).

Density of the current. The greater the density of the current the more intense the effect, and, as we have seen, in gynecological electrotherapy and the polar method, the greatest density is attained, as the effect is derived from the surface of one small pole, and the density of the current in the tissue surrounding this active pole varies but little, whether the dispersing electrode be large or small; hence, as has been stated, for mere working purposes, the record of this factor is of no value in gynecological electrotherapy, however important it is in other applications. The density has been expressed by the milliampère intensity divided by the square electrode

1 milliampère
square surface of electrode

It is an element which can be dispensed with practically in dose and record of gynecological electrotherapy; though of interest for investigations of scientific precision, and application to other parts. It is only in ovarian and similar intrapelvic intrapolar applications that we must take into account this element of density.

Quantity of electricity used. The coulombmeter. The coulomb is the unit of quantity, and is represented by the quantity of gas developed by a current of one ampère in one second of time, or by the amount of water displaced by the gas evolved by a current of one ampère in one second of time; in other words, a coulomb is the quantity that passes

in one second of time against one ohm of resistance under the electro-motor force of one volt. One coulomb will decompose 92 microgrammes of water, and upon this decomposition the instrument for measurement is based; though not scientifically exact, like the milliamperemeter, it is sufficiently so for practical purposes.

In gynecological practice it is sufficient to calculate the amount of electricity used, which is easily done if the intensity of the current and time of application are known: As one ampère for one second of time equals one coulomb, $\frac{1}{1000}$ of an ampère, or one milliampère, will equal $\frac{1}{1000}$ of one coulomb, in one minute, 60 seconds, will equal $\frac{60}{1000}$ or $\frac{3}{50}$ of a coulomb, and in five minutes, $\frac{300}{1000}$ of a coulomb. The current used in an ordinary application, for instance, 20 milliamperes for 5 minutes, equals $20 \times \frac{30}{1000}$ or 6 coulombs; the same as if a current of 100 milliamperes was applied for 1 minute, or of 1 ampère for 6 seconds.

I have made the measurements and calculations in my case records for the sake of observation and comparison, but I do not deem it necessary if milliampère intensity and time of application are given; it is merely one of the methods of measuring the galvanic current in all directions for precise determination. If a milliamperemeter is not at hand, the quantity may be measured by the coulombmeter, and, the time being known, and the resistance, the milliampère intensity may be calculated.

Electromotive force; the voltmeter. This is one of the measures used for determining the initial force of the agent, the power of the battery, or of the cells used in the treatment. One volt, the unit of electro-motive force, is a force sufficient to produce a current of one ampère through one ohm of resistance—that is, about equal to that of one chloride of silver, or of one Daniell, element.

The voltmeter used for measuring the electro-motive force is an instrument similar in appearance to the horizontal galvanometer, indicating the force in degrees of deflection of a needle, which is impelled by the current passing through a coil of high resistance underneath the pointer. This instrument is of service in determining the value of a battery for galvano-caustic purposes, and for recording the force of the elements used, but is superfluous in galvano-therapeutics for all but exact scientific work; it is not necessary for determining or recording the electric dose, but serves rather to define the status of the battery and of the elements used in the treatment; it tells us whether they are in perfect working order, whether they are deteriorating, and how they have been influenced by work or exposure.

The ampèremeter is used to determine the ampère capacity of the battery, or of the elements used in a given treatment; by this instrument, which is similar to the tangent galvanometer, the intensity of the current used for galvano-caustic purposes is determined, and it is our best means of recording this. In galvano-therapeutics it is useful for control of the battery and its elements, and by it the ampère capacity of the elements used for a given application, or the initial intensity of the current

may be determined. It is, of course, not kept constantly in the circuit, like the milliamperemeter, but is inserted in place of the body and milliamperemeter, after the application has been made, to show the intensity of current as coming direct from the battery. It is of no importance to the practitioner, but cannot be dispensed with for a complete determination of all elements; by the ampèremeter, knowing the milliampère intensity of the current in an application, we can calculate the resistance of tissues and electrodes, and, as by the voltmeter, we can record the condition of the elements before and after a *séance*.

This instrument takes the place of the milliamperemeter in all cases in which no such high resistance, as in medical treatment, is interposed. In gynecological electro-therapy this measure is unnecessary for practical work, as the efficiency of the treatment cannot be determined by the battery-force used, on account of the great resistance interposed, it serves us only for an understanding of the working power of the battery, and of the currents used in treatment, but for electro-cauterization and for mechanical purposes this is the gauge by which the work is measured. The ampèremeter is for the machinist, the electroplater and electro-lighter what the milliamperemeter is to the medical practitioner, who employs but an infinitesimal part of the electric intensity needed by the former.

Faradic Dosage.

The only precise measure applicable to faradic electricity is the electro-motive force and ampère capacity of the generating element, but these affect the therapeutic result too little to be considered in dosage. They are recorded only for scientific purposes.

For purposes of dosage we must as yet content ourselves with a rehearsal of the conditions by which the effects of the faradic current are determined.

Strength of the current is indicated by the distance between primary and secondary coil, as shown by the scale, but until a uniformity of instruments is achieved, this is of value only to the operator himself.

Time of application, of course, determines the effect and should be recorded.

Number of interruptions, which in my instruments, for instance, vary from 50 to 3000 per minute, is an important feature of the application and must be noted as one of the determining factors.

Size, shape, and material of the electrode affect the result greatly, and should be noted.

Tension and quality of the faradic current are perhaps its most important therapeutic factors, as the effect varies greatly with the nature of the secondary coil by which these are produced, hence this must always be noted.

A coil of long and fine wire gives high tension and little quality, whilst a short coil of heavy wire gives greater quality and less tension. By a current of tension the pain of cellulitis will be relieved, but the pain and swelling from a contusion will be aggravated; by a current of quality and low tension

the pain of a cellulitis would be aggravated, the pain, oedema, and venous distention of a contused surface will be alleviated; the former is used mainly for nerve, the latter for muscular effects.

Resistance of the tissues is of no practical importance, as we have no measure of faradic intensity corresponding to the ohm as the ampère does. It is noted only for experimental purposes and future possibilities.

Nomenclature. I will here again call attention to the nomenclature which I have employed and which I have urged for general adoption, in my first paper, so that the recording of cases may be simplified and a general understanding facilitated.

The method of application is described by the location of the poles, the site of the active pole being named first, that of the indifferent or dispersing pole following.

Thus, in speaking of a *utero-abdominal faradization*, I refer to the application of the faradic current with the active pole in the cavity, and the indifferent pole on the abdomen; by *intrauterine galvanism* I have indicated the bipolar treatment—that is, both poles in the uterine cavity. If the word negative or positive precedes, this always refers to the character of the first named, the active pole, viz., *positive recto-abdominal galvanism* tells us that the active positive pole is in the rectum.

The application of the bare metal pole to a surface with higher intensities of current is termed a cauterization. Thus, a *positive electro-cauterization* of the uterine cavity expresses in a concise form the application of the bare metal electrode, connected with the positive pole, to the uterine cavity, an intensity above 20 milliamperes being used, whilst the current is dispersed at the negative pole upon the nearest available surface, the abdomen. When the cauterizing metallic pole is replaced by a non-metallic pole, such as a cotton-wrapped applicator, I term this treatment *positive utero-abdominal galvanism*.

Puncture is the introduction of the needle or stylet, the metallic pole, directly into the tissues with dispersion of the current upon the nearest available surface; a *negative electro-puncture* of a fibroid is the electrolysis by a stylet in connection with the negative pole inserted into the tissues of the fibroid, the current being dispersed upon the abdomen in the positive electrode. If this puncture is made *per vaginam*, we speak of a *negative vaginal electro-puncture*.

Record of dose. I have stated that intensity of current in milliamperes, time of application, and square surface of dispersing electrode are necessary for determination of dose; to make this still more exact, I have always added a description of the active pole. An electro-cauterization of the uterine cavity I have thus precisely recorded:

—E. C. 20 milliamperes, 5 min. Fine probe. II. Plate.

i. e., 20 milliamperes were applied for 5 minutes with the fine—Sims's—probe as negative pole in the cavity, and II. plate with a surface of $28\frac{2}{3}$ square inches, as the positive dispersing pole, on the abdomen.

This is the therapeutic application and dose fully defined.

In cases recorded for research with scientific precision other data are added; these I have arranged in the following manner:

—E. C. 8 Gonda Leclanchè elements $10\frac{2}{3}$ volts, 0.63 ampère. Sims's probe, II. Plate; 20 milliamperes, 5 min., 6 coulombs. 600 ohms resistance (tissues 586 ohms, II. Plate, 14 ohms).

This, in addition to the data essentially necessary for dosage, tells us that for this treatment 8 Gonda Leclanchè elements were used, with an electro-motive force of $10\frac{2}{3}$ volts, and an ampère capacity of 0.63 ampère; that the quantity of electricity used in the treatment with effect upon the patient was 6 coulombs; that the entire resistance offered these 0.63 ampère of current, which allowed the use of 20 milliamperes effectively on the patient, was 600 ohms, which is essentially referable to the tissues, but an examination of the dispersing plate shows that this offered a resistance of 14 ohms, which leaves 586 ohms for the tissues, the resistance of the apparatus and rheophores being trifling.

The dose of a faradic application I have recorded in the following manner:

+ V. A. Faradism, 4 min. 6 cm., 1500 I. Fine coil.

Or, in other words, the positive cotton-covered ball electrode in the vagina, the small dispersing plate on the abdomen, used for four minutes, the secondary coil 6 cm. from the primary coil, 1500 interruptions per minute, a current of great tension and little quality, the long coil of fine wire as secondary helix.

When I first advocated attention to measure and dose, being myself deeply impressed with the importance of the principles advocated by Apostoli, many of the ablest practitioners, who had long felt the want of precision as the check to progress, readily accepted the idea, but were unable to procure the necessary instruments—I am speaking of gynecologists; others, especially those who have assumed prominence heretofore in electro-therapeutic science, denied the practicability of such measure, and in the face of my claim for a progressive move and effective doses, urged mild applications. A change is rapidly being effected, the demand for instruments of precision has created a supply, and whilst but a year ago hardly a milliamperemeter was to be had on this side of the Atlantic, and the galvanoscope was sold as a galvanometer, the market is now being supplied,¹ and the working members of

¹ Milliamperemeters of American make are now offered the profession, but I regret to say that, though I have tested several, I have not as yet found one which is perfectly accurate; some indicate *twice* the proper intensity, ten milliamperes when they should indicate five milliamperes, some two-thirds of the real strength of the current, etc. Every physician should test his galvanometer or have it tested by an expert electrician.

The most delicate test of the correctness of the instrument is the test of the intensity of the current by the amount of silver (or copper) deposited by it in a given time.

The simplest test, and sufficiently correct for instruments such as are used in medical practice, is by Ohm's law, $I = \frac{E}{R}$. Every physician can thus test his own galvanometer, if he has a rheostat

the profession are beginning to test the value of galvanism applied with precision and judgment, and those who not many months ago still upheld the theory of mild currents tested on the tongue, and long applied, are beginning to vaunt the effective strong current measured in milliamperes. Erb and others have long since urged the importance of dose and measure, but a standard had not been adopted; the weber would not yield to the ampère or the Siemen's unit to the ohm, the instruments were rare and costly, and, above all, those who urged precision and measure did not themselves set the example. In but few instances do we find case histories so recorded that the dose is stated with precision. Apostoli gave us the milliampère intensity, this was a most important step forward, also time of application, and the size of the electrode could be inferred. All the essentials were indicated, though not given for the purpose of thus noting dose; these I have systematized, and I believe that I can say that a correct and serviceable dosage has thus been attained.

If the good results of faradism, applied with scientific precision, were equally appreciated, the profession would also be supplied with effective faradic apparatus; but as yet this is only to be seen in the laboratory, and has not been accessible to the practitioner, hence it cannot be tested, and faradic electricity will slumber on as galvanism has done, until some enterprising mechanic gives a suitable instrument to the profession. With the apparatus now in the market, satisfactory results cannot be accomplished; a regulating interruptor, a sliding scale, and a series of graduated coils are wanted.

(To be concluded.)

and a cell of known electro-motor force and known internal resistance, and if the resistance of his galvanometer be known.

The test is made as follows:

$$I = \frac{E}{R} \text{ or Intensity} = \frac{\text{Electro-motor force}}{\text{Resistance}}$$

Resistance consists of resistance, or R , of galvanometer plus internal resistance of cell plus a certain rheostat resistance, which must be in a milliampère test, 1000 times E less (galvanometer R + internal cell R). Thus, if I take my Gonda-Leclanché cell

$$E = 1.3 \text{ volts.}$$

$$R = 2 \text{ ohms.}$$

$$R \text{ of my galvanometer} = 0.4 \text{ ohms.}$$

$$I \text{ or one milliampère} = \frac{1.3 \text{ volts.}}{1300 \text{ ohms.}}$$

$$0.001 \text{ m. a.} = \frac{1.3 \text{ volts}}{1300 \text{ ohms}} \quad 1300 \text{ ohms} = R = R' \text{ of cell} + R'' \text{ of galvanometer} + R''' \text{ of rheostat.}$$

$$0.001 = \frac{1.3}{2 + 0.4 + 1297.6}$$

In other words, my Gonda cell must show exactly one milliampère on a galvanometer, the R of which is 0.4 ohm, if I insert a rheostat R of 1297.6 ohms. This brings me to the great fault of the American milliamperemeters, also of the Stöhrer instrument, which lies in their unnecessarily great resistance, varying from 90 to 130 ohms; whilst the French, Gaiffe, instruments offer only 0.3 to 0.9 ohm resistance.

To the neurologist, who deals with resistances in the human body of 3000 to 30,000 ohms, this galvanometer R of 90 or 130 ohms is of no import; but to the gynecologist it makes a great difference; in his treatment of the pelvic tissues, which offer a resistance of from 60 to 300, a galvanometer R of 130 is an important factor.

Why waste as much battery force in overcoming the galvanometer R as is needed to overcome the R of the tissues? It is a needless loss of power, and herein lies the great advantage of the Gaiffe galvanometer, which offers an R which can be practically overlooked,—less than one ohm.

MEDICAL PROGRESS.

POISONING BY TYROTOXICON IN CREAM PUFFS.—DR. STANTON, Health Officer of Cincinnati, recently reported to the Cincinnati Medical Society several cases of poisoning by cream puffs. That these were the source of the toxic element was inferred from the fact that all the persons affected had partaken of puffs purchased on the same day at one bakery. All of the cases of poisoning occurred on Saturday or Sunday, April 2 and 3, but they first came to his knowledge on the Wednesday following, when one of the puffs was brought to the health office with a report of three of the cases. That the puff had undergone considerable decomposition, was shown by its sour, offensive odor, but no doubt much of the change had taken place after purchase, but that they were not as fresh as a delicacy composed of milk and eggs should be, might be inferred from the fact that one lady, when putting them upon the table on the evening of the day of purchase, remarked that she thought them stale. However, as all purchased by that family were eaten, they were probably at that time not so much changed as greatly to affect their taste.

So far as he had learned, four families were affected by the puffs from the one bakery. In one family there were five poisoned; in two families three each, and in one family two.

The patients all presented about the same symptoms, differing somewhat in degree, one patient being for a time seriously ill. The symptoms were those of an irritant poison. In most of the cases, in from one to three or four hours after partaking of the puffs, nausea came on, followed soon by vomiting, and later by purging. In some cases these symptoms were persistent. There was in all a sense of burning in the throat, stomach, and bowels, and great thirst. In the severer cases there were headache, and a disinclination to take food for some time.

Believing that the symptoms in the cases here referred to were due to tyrotoxinon poison, he made some chemical analyses according to the methods Prof. Vaughan has followed, and succeeded in isolating needle-shaped crystals which answer the description he has given of tyrotoxinon. He had not at hand the means of applying chemical tests to prove the identity of these crystals with that poison, nor had he time to get them before decomposition of the product rendered this impossible, for, like tyrotoxinon, it was very unstable; but he found by experiment upon himself that the residuum after evaporating the ethereal extract produced a sense of burning in the mouth and stomach, and nausea, such as are produced by tyrotoxinon. A larger amount would, no doubt, have produced vomiting and purging. The microscopic appearance, the unstable nature of the crystals, and the effects, convinced him that the poisoning in the cases here referred to was due to tyrotoxinon.

The method followed in testing the cream puffs was that recommended by Prof. Vaughan. A portion of the custard from one of the puffs was mixed with water. It was intensely acid. Potassium hydrate was added in sufficient amount to render the mixture slightly alkaline. An equal amount of ether was added, which, after separation, was removed by a medicine dropper. This was allowed to evaporate, and the residue dissolved in dis-

tilled water. This aqueous solution was again agitated with ether, and after separation the ethereal solution was dropped upon a microscope slide, and allowed to evaporate, the tyrotoxon crystallizing in long, needle-shaped crystals. There were also visible on the slide some crystals of cholesterine, some phosphates, and other crystals, which were probably salts of potassium with some acid of decomposition soluble in both water and ether.—*Lancet-Clinic*, April 23, 1887.

TREATMENT OF LACHRYMAL TUMOR.—GRANDMONT treated a tumor of the puncta lachrymalis, with occlusion of the duct, as follows:

In the beginning he bathed the puncta in the following fluid:

Chloral. hydrat.,
Sodii salicylat. āā gr. 8.
Aquæ ℥ 5.

He then dilated the duct with a sound.

If an abscess formed it was opened, and bichloride of mercury, in solution, was used as an antiseptic.—*Les Nouveaux Remèdes*, April 24, 1887.

THERAPEUTIC USES OF PYRIDINE.—DR. DANDIEU, of Paris, has recently published a monograph on the use of pyridine and other allied bases (collidine, etc.) in which he states the following conclusions, supporting those already reached by Prof. Germain Sée:

1. Pyridine is indicated in attacks of angina pectoris. Its action is prompt. Its use prevents fresh attacks.

2. In asthma, whether of nervous, emphysematous, or catarrhal origin, inhalations of pyridine are to be preferred to subcutaneous injections of morphine; their effect is more lasting, and is unattended with danger. It is not only palliative, but truly curative.

3. In asthmatic attacks resulting from the inhalations of irritating gases, it is also an efficient agent.

4. In the dyspnoea of phthisis, and in that from affections of the larynx, its action is prompt.

Prof. Sée employs pyridine in the following manner: The patient is placed in a small room, about nine feet square. The pyridine, a teaspoonful, is simply poured on a plate, and set on a table in the room, where it evaporates spontaneously, impregnating the air with its vapor. In urgent cases, the pyridine may be inhaled directly, four or five drops of it being placed on a handkerchief and held before the patient's face.—*American Lancet*, May, 1887.

FORMULÆ FOR THE HYPODERMATIC USE OF NEW REMEDIES.—The following are from *A Manual of Hypodermatic Injections*, by BOURNEVILLE and BRICON:

1. Acid. chrysophanic gr. $\frac{1}{2}$ to $\frac{1}{6}$.
Aquæ destillat. ℥ 15.

Employed successfully in eczema, lichen, prurigo, psoriasis, and urticaria.

2. Acid. osmic. gr. $\frac{1}{2}$.
Aquæ destillat. ℥ 2 $\frac{1}{2}$.

For interstitial injections in the treatment of tumors; in the treatment of obstinate neuralgia (Billroth, Neuber), from 8 to 15 minims of the solution may be injected in the vicinity of the affected nerve.

3. Agaricin. gr. $\frac{3}{4}$.
Alcohol. absolut. ℥ 70.
Glycerinæ ℥ 85.

The contents of an ordinary hypodermatic syringe, 20 to 30 minims, may be given for the night sweats of phthisis.

4. Antipyrin. hydrochlorat. . . . gr. 15.
Aquæ destillat. ℥ 15.

Solution should be aided by heat. Huchard has used the drug with benefit as an antipyretic.

5. Cotoin pur. gr. 15.
Ether. acetic. ℥ 1.

The contents of a hypodermatic syringe may be injected and repeated in fifteen or twenty minutes, or every hour, for obstinate diarrhoea, intestinal ulceration, in cirrhosis, and alcoholism. May be used in cholera, night sweats.

6. Kairin. hydrochlorat. . . . gr. $1\frac{1}{2}$.
Aquæ destillat. ℥ 15.

A powerful antithermic; antipyrine is preferable.

7. Alcoholic solution trinitrin, 1 to 100 gtt. 30.
Aquæ destillat. (lauro-cerasi) ℥ 2 6℥, to ℥ 2 $\frac{1}{2}$.

This should be injected into the muscles of the back or nates. To be given in angina or cerebral anæmia.

8. Paraldehyde,
Aquæ lauro-cerasi āā ℥ 75.
Aquæ destillat. ℥ 3 $\frac{3}{4}$.

The syringe should be plunged into warm water before giving the injection, to heat the fluid moderately. Paraldehyde is hypnotic and sedative.

9. Pereirin. hydrochlorat. . . . grs. 15 to 30.
Aquæ destillat. ℥ 5.

Dose from $1\frac{1}{2}$ to 6 minims in intermittent fever.

10. Thallin. sulphat. grs. 15.
Aquæ destillat. ℥ 75.

The solution should always be warmed. One and a half grains of thallin, given hypodermatically, are sufficient to produce a fall of temperature of $2\frac{1}{10}^{\circ}$ to $3\frac{1}{10}^{\circ}$ from six to nine hours.—*Journal de Médecine*, April 3, 1887.

IRRIGATION OF THE KNEE-JOINT.—DR. CULVER reports in the *New York Medical Journal* of May 7, 1887, a case successfully treated, as follows:

The outer side of the knee at the place selected for puncture was injected with a four per cent. solution of cocaine into the skin itself, taking care that it did not get into the subcutaneous tissue; the joint and surrounding parts were scrubbed with a nail-brush, using the bichloride of mercury soap and a solution of the bichloride (1 to 1000), and we were then ready for the operation.

We had provided a fountain syringe with a metal nozzle, and a large-sized trocar and canula, the nozzle made to fit into the latter, all the steel instruments having been boiled in a carbolic solution, and everything else thoroughly antiseptically cleansed, also 1000 grammes of a 1 to 30 solution of carbolic acid made from distilled water, carefully filtered and warmed to 80° F.

The technique of the operation is to plunge the trocar into the lower and most distended portion of the synovial pouch, the assistant meanwhile making careful pressure over the whole joint with both hands, so that the serous fluid may first flow nearly out, and then the joint is to be carefully distended with the irrigating fluid, and by pressure gently emptied, and this is to be repeated until the fluid comes out clear, using from 450 to 1000 grammes (1 to 3 pints) of the irrigating fluid.

OVER-DISTENTION OF THE RIGHT VENTRICLE RELIEVED BY LEECHES.—DR. F. C. SHATTUCK, of Boston, reports, among others, the following interesting case:

M., aged eleven years, entered the House of the Good Samaritan, May 17, 1886, for mitral disease, the result of rheumatic endocarditis the previous winter. September 10th she was sent to the Convalescent Home connected with the institution, and stayed till November 20th, when she came back. Under absolute rest, careful feeding, and digitalis, she improved for a time, but grew worse again.

January 31, 1887. She was vomiting everything she took; there was marked cyanosis, and some ascites, anasarca, and hydrothorax; the jugulars and the liver were pulsating distinctively; the pulse was 129-130; the daily amount of urine had fallen to 32-3. Six leeches were ordered over the liver, and, with the subsequent bleeding, the amount of blood lost was estimated at 38. Immediate relief followed; the vomiting ceased, she had a good night, the next day the venous pulsation was scarcely to be seen, and she ate a good breakfast with relish. The amount of urine rose to 10 ounces on February 1st, to 9 ounces on February 2d, 10½ ounces on February 3d, 123 ounces on February 4th, 60 ounces on February 5th.

The pulse fell on the 3d to 90. It is only fair to state that on the 2d, she was ordered tincture of strophanthus mij ; t. i. d. I do not doubt that this drug contributed to the diuresis and continued improvement, but from my experience with other cases I am persuaded that without the previous leeching it would have been useless. Since then I have pushed the strophanthus up to vi , t. i. d., the pulse remaining at 108 all the time. There was an interval of a fortnight between the time the strophanthus was omitted and resumed.

The child is now up and dressed all day, and is steadily improving in weight and strength. I believe that her life was saved by the leeches.—*Boston Medical and Surgical Journal*, April 28, 1887.

CREASOTE IN PULMONARY TUBERCULOSIS.—FRÄNTZEL prescribes creasote as follows in the treatment of phthisis:

R.—Creasote ʒ 10.
Tinct. gentian ʒ 7½.
Spts. vini rect. ʒ 7¼.
Vini verici ad O 2.—M.

Sig.—Daily two or three tablespoonfuls—after meals.

This treatment is best suited for cases of beginning phthisis, in which the progress of the disease is slow.

The treatment may be long continued. The results are a general improvement in the condition of the patients. The bacilli are not affected. Inhalations of

creasote are useless (Koch and Gaffky).—*Berliner klinische Wochenschrift*, April 25, 1887.

INOCULATION FOR YELLOW FEVER.—DR. BUSTAMENTE, of Cucuta, South America, is quoted as follows by the *Boston Medical and Surgical Journal* of April 28, 1887:

"Dr. Urricochea, surgeon of the frontier battalion, inoculated, by way of experiment, and with good results, five of his soldiers. Twenty minutes after the operation the temperature gradually ascended to 40° C., accompanied with all the symptoms of yellow fever. This lasted forty hours, at the expiration of which the fever and all attendant symptoms had disappeared. This operation was effected in a place called Moras, three leagues from Cucuta, and where a body of troops is stationed, who have not come to the city for fear of the fever. At present, the inoculated soldiers are here, exposed to the action of the focus of infection. As in Moras, no case of the epidemic has as yet presented itself." Dr. Bustamente, in his letter, says, "as yet my labors in the field of inoculation as a preventive of yellow fever are only, it may be said, mere experiments, which, although they may satisfy me with a well-founded hope of successful and complete result, cannot be of genuine utility until the best and most efficacious method is decided upon. I am thinking, however, of making an abstract of my observations, together with the method pursued, the results obtained, and everything that may be useful in the premises. For the present, I will confine myself to the statement that, in more than forty persons whom I have inoculated, a fever, with many of the characteristic symptoms of yellow fever, has presented itself; this fever, developed by inoculation, varying several tenths of a degree, and, in some cases, ascending to 41° C., but never presenting the most grave symptoms of yellow fever. The result of my observations permit me to state positively that the fever produced by inoculation is attended with no danger; and it is safe to inoculate, as I have already done, from children of two years to the oldest individuals. Many of the persons inoculated have come to this city, and in no case has the yellow fever attacked them, which gives me hope of a final result completely satisfactory. The municipality, assisted by the merchants, sent to Mexico, January 10th, a commission composed of two physicians, in order to study the inoculation of the fever."

TERPINE AS A DIURETIC.—LEPINE prescribes as follows:

R.—Terpinal,
Sodii benzoate āā gr. 15.
Sacchar. alba. q. s.

Ft. pil. 10 in num.

Sig.—From five to ten pills daily.—*Journal de Médecine*, April 10, 1887.

ICE POULTICE.—Spread a layer of linseed meal, three-fourths of an inch deep, on a cloth of proper size, and put pieces of ice the size of a marble on the meal at intervals of an inch; then sprinkle lightly with the meal; cover with a cloth, and turn over the edges; apply to the thick surface to the skin. The meal protects the skin and excludes the air from the ice, thus preventing melting.—*Technics*.

THE MEDICAL NEWS.

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SATURDAY, MAY 21, 1887.

HÆMATEMESIS IN TYPHOID FEVER.

IN no disease does the unexpected happen more frequently than in typhoid fever, and, therefore, every possible complication, no matter how rare, must be borne in mind as something that may, at any moment, assume a primary importance. Hæmatemesis in the course of typhoid fever from ordinary causes, such as simple or malignant ulceration and cirrhosis of the liver, is a very rare event, but decidedly more common than that occasioned by the specific typhoid deposit in the gastric mucous membrane. A few cases of this latter sort have been reported, in one of which, that of Millard, the diagnosis was confirmed by the necropsy. On the anterior wall of the stomach, near the pyloric end and a little below the lesser curvature, was an oval ulcer one inch and a half long by three-quarters of an inch wide, with an irregular border, extending in depth to the serosa. Directly opposite, on the posterior wall, were two small superficial ulcerations.

In 1834 Chomel referred a hæmatemesis in a case of typhoid fever to a specific typhoid ulceration of the stomach, and Murchison, quoting this case, admits the explanation.

The most recent contribution to this subject is by WEISS, of Prague, who, in the *Wiener medizinische Presse*, Nos. 13 and 14, 1887, reports the case of a soldier, aged twenty-two, who succumbed to profuse gastric hemorrhage at about the beginning of the third week. This was preceded by intestinal hemorrhage. In the absence of a post-mortem examination the diagnosis was based on the following facts. At the time of the attack of fever the patient was in excellent health, and had never suffered from any symptoms of gastric disturbance. He was not a

drinker, had never had syphilis, and the heart and lungs were sound. There were no petechiæ in the skin and there had been no epistaxis, and, finally, a careful inspection of the naso-pharyngeal cavity revealed no lesion whatever. The source of the fatal hemorrhage was, therefore, the duodenum, the lower portion of the œsophagus, or the stomach, and its cause, considering the previous physical condition of the subject, was presumably typhoid ulceration.

Numerous authorities are quoted by Weiss to prove that typhoid processes in the stomach and its immediate neighborhood are more common than is generally supposed, and that symptoms usually regarded as functional, are often due to structural changes. Louis and Jenner have observed typhoid ulcers in the lower portion of the œsophagus. Röderer and Wagner have described an œsophagitis follicularis as common in an epidemic in Göttingen, and Eichhorst and Reimer have observed similar changes.

Rokitansky has noticed infiltration and even necrosis of the so-called lenticular glands of the stomach, and Chauffard and Cornil have described an infiltration of the mucosa and submucosa with lymphoid cells which may proceed to the formation of miliary abscesses.

A particularly interesting case of abnormal localization of the typhoid process, is described by Chiari. The stomach, duodenum, and upper part of the jejunum were the seat of swelling, hyperæmia, hemorrhage, and superficial necrosis, while scarcely any abnormal change could be demonstrated in the ileum. Prof. Chiari states that he has not seldom observed typhoid changes in the stomach, and there can be no doubt that typhoid processes in the stomach and its neighborhood would be frequently found if carefully sought for. But such a search is decidedly exceptional, since there is a general belief that all claims to represent typhoid fever have been long since preempted by the ileum.

Diagnostic indications of this process in the stomach are cardialgia, sometimes intense, vomiting, tenderness in the epigastrium, and pain in the same region elicited by pressure over the cervical sympathetic. This last symptom was well marked in the case reported by Weiss. Eichhorst observed in the Zürich epidemic that a rise in temperature preceded the occurrence of intestinal hemorrhage; and in analogy with this Weiss reports that in his case the temperature rose to 105° F. immediately before the vomiting of blood.

The treatment of this form of hæmatemesis is the same as that of gastric hemorrhage from other causes, and includes the administration of ice pills and styptics, of which one of the best is alum whey. It is certainly reasonable to suppose that the efficacy of such remedies administered *per os* will be in

proportion to the vicinity of the bleeding surface, and that, in consequence, greater success will attend their exhibition in gastric than in intestinal hemorrhage. Ergotine hypodermatically and cold compresses to the abdomen are important therapeutic measures, although the latter may be contraindicated, as they were in the case reported by Weiss, by excessive epigastric tenderness.

The communication of Weiss proves that the pathology of typhoid fever is a subject by no means exhausted, although undoubtedly hackneyed from continued reiteration of well-known facts. It should stimulate observers to a more careful study of the upper sections of the digestive tract, not only when the lesions in the ileum are slightly manifest or absent, but as a matter of routine in every case of typhoid fever.

THE INDUCTION OF LABOR BY ELECTRICITY.

The report of seven cases by BRÜHL in the *Archiv für Gynäkologie*, B. xxx. H. 1, confirms and emphasizes the unfavorable opinion we had occasion to express some time ago in regard to the employment of electricity to induce premature labor. In each case the application of a galvanic current for a number of days successively resulted in uniform failure. Nothing more was accomplished than the dilatation of the os to the size of a dollar; so that, in order to stimulate the uterine muscle to sufficiently energetic action to complete the labor, other means had to be employed.

Not only was the galvanic current insufficient, but it was also decidedly deleterious in its action. In one case, the skin over the fundus uteri was injured by the anode, while in two cases there was a purulent vaginitis as the result of the application of the cathode to the cervix, although careful antiseptic precautions were observed.

The prolonged application of the electricity, moreover, deadened the sensibility of the uterus in a remarkable manner, so that when it became necessary to resort to more powerful stimuli, they met with but a sluggish response. But still more serious was the fetal mortality, for, of the seven children, five were stillborn, three from prolapse of the umbilical cord, due to the lively movements of the fetus excited by the electrical current.

Electricity by no means answers the description of the best agent for inducing labor, one that will with certainty cause the expulsion of the fetus within a reasonable time without danger to the mother or child; but in view of the fact that it will dilate the cervical canal up to a certain point, it might possibly be used, as suggested by Lusk, as a substitute for tents. On the whole, however, we are disposed to echo Dr. Brühl's conclusion that he cannot recommend it.

THE COMPARATIVE ACTION OF ANTIPYRIN AND ANTIFEBRIN.

ALTHOUGH antifebrin has but just come into use as compared with its fellow, antipyrin, little doubt exists that it is preferable to the latter. Aside from the results obtained by comparative tests at the bedside, more particularly by EISENHART, as reported in *Münchener med. Wochenschrift*, 1886, No. 47, and by CAHN and HEPP in *Berlin. med. Wochenschrift*, 1887, Nos. 1 and 2, the general profession has not reported as many untoward effects from its use as from antipyrin, while its cheapness, small dosage, and reliability have already given it a place of high esteem among clinicians.

Both Eisenhart and the French observers reach the conclusion that five grains of antifebrin are equal to twenty of antipyrin, and although this is somewhat below the estimate made by the profession in America, it so nearly approaches the results obtained here that the matter may be considered as settled.

It will be remembered that the chief objection to antipyrin was that it was capable of causing profound collapse, as well as other minor, but scarcely less alarming, symptoms, and it should not be forgotten that antifebrin may produce the same result, if given in large doses in susceptible cases.

Many observers have noted the appearance of an exanthematous rash under its use, and HEINZELMANN, in the *Münchener med. Wochenschrift*, 1887, No. 3, reports cases in which deafness and mydriasis occurred. These instances of untoward effects produced by antifebrin are fortunately sufficiently scattered to permit us to use the drug with great freedom. Indeed, the only manner in which the two drugs act identically, other than as antipyretics, appears to be the profuse sweat which they produce about the time of their absorption into the circulation.

Sudden cardiac failure has been produced by both drugs, and in a single case of pneumonia in which antifebrin was administered, which has come to our knowledge, the patient, apparently convalescing, while sitting up in bed talking to a friend suddenly dropped back dead on the pillow. It is but just, however, to state that the patient had been a sufferer for many years from disease of the mitral valve, and as no post-mortem was allowed, the exact cause of death cannot be stated; although the attending physician, a man of good judgment, ascribed it to the drug, with sufficient reason in his own mind to prevent his using it but carefully a second time.

The experience of the profession in this city has certainly engendered the belief that in a very large proportion of cases the newer antipyretic may be used with advantage in place of antipyrin, and unless some as yet undetected evil influence exerted by it is discovered, it will, without doubt, remain

one of our chief aids in the reduction of abnormally high temperatures.

MORTALITY OF FOUNDLINGS.

FROM some inquiries recently made at the Philadelphia Hospital we learned that of sixty-six foundlings received during four years into that institution, thirty-five died within the first year. It is true, some of these deaths were caused by measles, but the great majority of these infants perished from what, though commonly known as marasmus, really means starvation. Now the secret of this starvation was not an inadequate supply, or absolutely unsuitable character of food, or failure to give it at proper intervals, but too much was given.

The most frequent mistake in the artificial nourishment of newborn infants is giving them the quantity of food which the infant at six months, for example, requires; disorder of the digestive organs quickly follows this constant overloading the stomach, the child soon loses its plumpness, then becomes rapidly emaciated, gastric catarrh and diarrhoea set in, and the poor creature dies starved to death by over-feeding. The proper remedy, the true way to prevent this evil in public institutions, and often in private practice, is to have nursing-bottles which will hold only the quantity of food needed; for example, instead of using a bottle which holds four to six ounces, as that generally used does, employ one which will hold only two ounces, for an infant during at least the first two months of its life. We believe, if this rule be observed, the mortality of hand-fed infants would be materially lessened.

THE relation between managers and the medical staff of hospitals is, as a rule, on a very unsatisfactory basis, and the recent action of the Managers of the Pennsylvania Hospital in dropping suddenly, without a hearing, and without known cause, one of the surgeons to that institution, has aroused considerable and just indignation among the profession in this city.

Managers occasionally appear, as in the present case, to regard the medical staff as their servants, and to be subject to dismissal at their pleasure. It is true that the staff are the appointees of the managers, but as they contribute their professional services without pay, and as these services are the essential object for which the charity exists, the staff have a just right to consider themselves contributors to the institution fully equal in import to those who give money for the support of the patients while under professional care; and they should receive from managers that consideration to which their position as coördinate dispensers of the charity equitably entitles them.

The recent case appears, in all its phases, as a most flagrant act of injustice to a faithful medical officer, and to place a stigma upon his professional reputation which is ineffaceable and unwarrantable. That the vacancy has been filled is greatly to be regretted, as, apart from its ethical aspect, upon which much could be said, it tends to imperil the position and reputation of every hospital physician and surgeon in the land.

THE numerous mental scientists, faith healers, and the like, which have recently sprung up in Chicago, are greatly disturbed over a bill now pending in the Illinois Legislature, which, if it becomes a law, will hamper their operations. The bill was prepared by the State Board of Health. Under the regular State law certain qualifications, such as a diploma from a recognized school of medicine, are required from every person who practises medicine within the State, but a person who has not been graduated from a recognized medical school may get a license by passing an examination that will be satisfactory to the Board of Health. The proposed new act contains this clause:

"Any citizen shall be regarded as practising medicine, within the meaning of this Act, who shall treat, operate on, or prescribe for, the sick or afflicted."

It is furthermore provided, that a fee of \$25 shall be paid for the examination of non-graduates, and that itinerant vendors of anything intended for the treatment of disease, or who, in any way, profess to heal disease by any drug, nostrum, manipulation, or other expedient, shall pay a license of \$100 a month to the Board.

If this bill becomes a law, the large number of irregulars in Chicago, who profess to cure the body by magnetic healing, Christian or mental science, or by any means of a spiritualistic or metaphysical character—whether natural or supernatural—must pass a satisfactory examination before being allowed to practise.

WITH its issue of May 7th *The Medical and Surgical Reporter* passed under the control of Drs. Randolph and Dulles as editors and publishers. Its new managers, who, however, are not new to medical journalism, are well equipped for the task which they have undertaken, and the interests which have been confided to their hands will be ably maintained and promoted.

Dr. D. G. Brinton states that it is not his intention to retire from the arena of medical journalism, and that he hopes in the early autumn to announce his connection with a journal which will fully meet the legitimate demands of the medical public of the day.

THE second annual meeting of the Association of American Physicians will be held in the Army Medical Museum building at Washington, on Thursday and Friday, June 2d and 3d, under the presidency of Dr. S. Weir Mitchell. The programme, which appears in another column, embraces the titles of a number of interesting papers.

THE American Laryngological Association will hold its Ninth Congress in New York, Thursday, Friday, and Saturday of next week, under the presidency of Dr. E. Fletcher Ingalls, of Chicago. The programme, which appears in another column, gives promise of an unusually attractive and instructive meeting. The profession is cordially invited by the Association to attend its sessions.

THE Annual Commencement of the College of Physicians and Surgeons of New York was held at Steinway Hall on May 12th, and the degree of M.D. was conferred on 106 graduates. The Cartwright Alumni prize of \$500 for the best medical essay, open to universal competition was awarded to Dr. B. Farquhar Curtis, of New York, for his monograph on "Injuries to the Abdomen and Rupture of the Intestines."

SOCIETY PROCEEDINGS.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting, Washington, D. C., May 11, 12, and 13, 1887.

(Specially reported for THE MEDICAL NEWS.)

WEDNESDAY, MAY 11TH, FIRST DAY.

MORNING SESSION.

The Association was called to order by THE PRESIDENT, DR. HUNTER MCGUIRE, of Richmond, at 11 A. M. On motion roll call was dispensed with, and the President delivered the *Annual Address* on

THE NEED AND VALUE OF COÖPERATIVE WORK IN SURGERY.

That "in union there is strength" is a proverb recognized and accepted by all men. Nearly every advance is secured by coöperative effort. Every department of life is full of illustrations of the power of association in the accomplishment of great purposes, while the examples are almost as numerous of the failure of individuals to attain those ends because they work unaided and alone. A number of historical examples were cited to demonstrate what has actually been accomplished by united effort, and such, the speaker added, are the successes and triumphs which await us, if we too appreciate its value, and avail ourselves of its potent influence. If the celebrated aphorism of Pliny be true, that "to live is to observe," it is evident that the more observers there are in the field, all having their investigations directed to one end, the richer must

be the discoveries which make professional life, in the largest sense of the word, worth living.

Advance in surgery can be more surely made by Associations such as ours, than by any individual effort. The life of one man is too short, and his field of labor too narrow, for him alone to hope to settle many of the vexed problems in our science. The day has passed when the dictum of one man, however exalted, is received without question. The desire now is to know what the mass of thinking men in our profession believe, preach, and practise. Few discoveries of value have been obtained by the observations of one man, although they may at the first glance thus appear.

The difficulties which beset us are many, and at first sight almost insuperable. Disease presents problems difficult to determine. We cannot apply to the human machine the fixed rules by which inanimate bodies are governed. The result of the work of the surgeon in private houses and in public hospitals must be different. The result obtained by the military surgeon is something different from the work of the surgeon in time of peace. The subtle influence of social and moral condition, of climate, season, individual and race peculiarity, the surroundings of the patient, have all to be considered in settling many questions, and determining the value of many contributions.

But we cannot as surgeons alone hope to determine many of the questions which must arise in our calling. We need and must accept the help of the biologist, the patient disclosures of the pathologist, the work of the chemist, and that of every known science and art. For the developments awaiting us we must be indebted to the contributions which every patient and conscientious laborer may bring to the common stock of ascertained knowledge, and we will accomplish this best by the cultivation of a broad and generous appreciation of each other's work.

In conclusion, the President made a few suggestions for the improvement of the Association.

DR. GROSS asked that a committee be appointed to consider the suggestions contained in the address of the President. Drs. Gross, C. H. Mastin, D. W. Yandell, Moses Gunn, and C. Johnston, were appointed this committee.

The Association then went into executive session.

AFTERNOON SESSION.

DR. F. S. DENNIS, of New York, read a paper on

THE EXPLORATION OF THE BLADDER BY THE SUPRAPUBIC METHOD,

which will appear in full in an early number of THE MEDICAL NEWS.

DR. JOHN H. PACKARD, of Philadelphia, then read a paper entitled

SUPRAPUBIC CYSTOTOMY FOR PURPOSES OTHER THAN THE EXTRACTION OF CALCULUS.

He reviewed the history of the operation. Although introduced in 1560, it has, until very recent times, been regarded with a species of superstition, and in the schools and by private instructors it was either entirely passed over or mentioned with disfavor. When it was first performed in this country by Dr. H. Lenox Hodge, in 1874, the operation was severely criticised by many of the best surgeons, although it was eminently proper.

He did not wish to appear as an advocate of suprapubic cystotomy as against all other methods of access to the bladder; but simply to discuss the question whether or not the objections which have prevailed to place it in the background are shown by reason or by experience to be well founded. This he desired to do without bringing in the matter of hypogastric lithotomy, which has been so ably and so thoroughly handled by Dulles, of Philadelphia, and others; although he recognized, at the same time, the great difficulty encountered in an attempt to leave it wholly aside.

With regard to the proposed surgical procedure, the questions which must arise are: How far is it free from risk in itself? How far does it effect the object in view? What are the difficulties attending its performance? And in comparing any procedure with others having the same end, the same questions must arise, but in the comparative form: Is it more or less safe? Is it better calculated, or not so well, to effect the desired object? Is it easier of performance or more difficult?

He entered into the discussion of the details of the methods of procedure adopted in opening the bladder above the pubes. First, the most thorough antiseptic precautions were advised. In regard to having the bladder distended, he said that most of his cases were of the character in which the organ had been already in danger of bursting from the pressure of the contained urine. With regard to the distention of the rectum, he thought that there is less risk and more advantage. By thus preventing the sinking of the bladder into the pelvis until all the arrangements for drainage have been fully made, one possible source of danger and embarrassment is set aside. With regard to steadying the bladder by the hand of an assistant, when the incision or puncture is to be made, as recommended by some, he thought the procedure not only needless but objectionable. The incision through the skin should be free enough to give ready access to the deep parts. In fat persons it must be about three inches long, but when the abdominal wall is thin two inches in length will suffice. When the incision is made in the median line no vessels of any importance can be encountered. Before opening the bladder it is very necessary to get control of it in some way, lest it should, as the urine flows out, collapse, settle back into the pelvis, and render the orifice made by the surgeon very hard to find. It may become still more difficult to insert a canula. For this purpose he recommended a small double hook, recurved and set at a right angle on a stem. A small tenaculum may be made to answer the same purpose, though its sharp point is objectionable. When a large opening is to be made into the bladder for purposes of exploration, the ligature is perhaps the best method of all for the purpose.

A curious proposition has been made by Duchatelet, and is quoted by Villeneuve, that the opening in the bladder should always be made through the peritoneum, and thus, as he says, that "plasticity should be substituted for friability." Considering the view that the danger of wounding the peritoneum has always been one of the strongest objections to the suprapubic operation, it is only the bolder of the bold who would be thus likely to take the bull by the horns. In regard to the proper point at which to open the bladder, he thought that many authors in avoiding Scylla had steered into

Charybdis. In attempting to avoid the peritoneum they had made their incisions so low that the opening must sink below the pubes when the bladder was contracted. In his own opinion the best point is at about the middle of the exposed portion of the viscus.

For drainage he preferred a soft rubber tube of a length to be determined for each case. It should go well into the bladder even when collapsed, and should have lateral openings only near its inner orifice. He did not favor the proposition to have the patient lie on his belly in order to facilitate drainage, because of the discomfort it occasioned. If the opening into the bladder had been large, he recommended the use of two or three catgut sutures. The external wound should be closed also with catgut or silkworm gut, and the drainage tube may be secured by passing through it one of the sutures.

In conclusion, he claimed that it had been his endeavor to examine fairly and without prejudice into the case for and against the suprapubic section of the bladder apart from lithotomy. It would seem, he said, that there has been a mixture of tradition and a sort of superstition in the feeling with which this operation has been regarded. The proportion of absolute successes, so far as he was able to calculate, was eighty per cent., the failures about seven per cent., and the instances in which bad consequences were attributable to the operation about eleven per cent. And in looking at the cases in detail, it seemed to him that on all the counts of the indictment, danger of peritonitis, danger of infiltration of urine and urinary gases, danger of urinary fistula, a verdict of at least "not proven" may fairly be asked for. The suprapubic operation does not by any means in any case preclude the perineal, as was shown by a number of cases cited in the paper. On the contrary, it frequently prepares the way for it.

One question he would ask: If the suprapubic operation had been first tried and generally adopted, is it likely that the perineal operation would have been afterward performed on account of its great ease, simplicity, or efficiency?

DR. A. VANDERVEER, of Albany, then presented a paper entitled

TO WHAT EXTENT CAN WE CLASSIFY VESICAL CALCULI FOR OPERATION, WITH A REPORT OF CASES AND REMARKS ON THE DIFFERENT METHODS EMPLOYED.

In explanation of his presenting a paper on this subject, he remarked that, while he did not come from a stone-bearing section, he had found from conversations with his associates, that he had operated upon rather more than the average number of cases in the vicinity, and it is an operation to which he had devoted considerable study. He then reported briefly his more marked cases, forty-one in number, following the reports with a brief statement of the different methods employed in this and other countries for the treatment of stone. The cases presented represented every variety of stone, as to location in the bladder, prostatic, membranous, and spongy portions of the urethra. The kinds as to formation of hard and soft calculi was singularly complete, while the extremes as to size were remarkable.

After a review of the literature of the subject, he formulated the following conclusions:

In the cases reported, the litholapaxies, where the

stone was small or up to moderate size, did quite as well as the clean lithotomies.

Regarding the operation of rapid lithotripsy, there is much that is wanting in the study of the after condition of the patients, and we ought soon to have valuable statistics on the subject. In this regard we must remember the fallacy of all tables, since many cases never return to the first operator.

In male adults if there is severe chronic cystitis, the suprapubic, or some form of perineal section seems best. One condition in the adult has not received proper attention, namely, the contracted bladder with adhesions, and that must in some instances embarrass the doing of the suprapubic operation. On anatomical grounds the suprapubic operation is much simpler in the youth, owing to the fact that the bladder is much higher in the pelvis.

In girls, rapid lithotripsy or suprapubic lithotomy will undoubtedly reach all cases. In adult women, vaginal lithotomy may be added.

Can we yet classify our cases with certainty as to what is the best and most certain course to pursue for the safety of our patient's life and future comfort? In attempting to do this with his own cases, he said, there were seven perineal lithotomies with two deaths and five recoveries, the deaths being in old men with very large calculi. Of attempted litholapaxies there were two cases, both resulting in death, one in his own practice and one in that of the late Dr. Snow. Both were very severe cases of large stone, and the patients presented a history of much suffering through many years. Of dilatation in the female and washing out of fragments or removal of stone entire, there were six cases, all recovering with no complication whatever. Of urethral calculi in the male, there were four cases, all recovering. Of simple lithotripsy in the male, there was one case, followed by recovery. Of attempted litholapaxies, which were not completed, there were four cases, three ending in death, and one in which the stone was hidden in a sac and later underwent lithotomy and recovered. One was probably complicated with some form of tumor of the bladder, and had a history of chronic disease of the kidneys. One was a case of chronic alcoholism. One was complicated with sacculated bladder, and the last two were cases of surgical kidney of the very gravest kind. Of the litholapaxies in the male there were eighteen patients having twenty-two operations, four requiring a second operation. Of the number, sixteen recovered and two died; the latter, one after the first and one after the second operation.

He closed with a few remarks on the difficulty of securing a proper examination of the urine, such as would reveal the true condition of the kidneys. Casts are very generally absent; albumen can very often be traced to the presence of pus, and he expressed the conviction that we have yet much to learn from the surgical kidney.

On motion, the discussion of the papers read was postponed until Thursday morning.

The President then announced the following

NOMINATING COMMITTEE:

Drs. J. Collins Warren, John H. Brinton, N. P. Dandridge, T. F. Prewitt, and D. W. Yandell.

THURSDAY, MAY 12TH, SECOND DAY.

MORNING SESSION.

The special order of business was the discussion of the papers read on Wednesday on

OPERATION FOR STONE.

DR. W. T. BRIGGS said that Dr. Dennis's paper gave us the history of the details of performance of suprapubic cystotomy for the removal of stone, and the only point which he desired to notice was the sweeping announcement that it should be applied, and would be applied hereafter, to all cases, and in all conditions and circumstances, except those in which litholapaxy is resorted to. His own impression is that there is no special operation adapted to all cases, but that each case should be closely scrutinized, and selected for some special operation adapted to that case. He is satisfied that the suprapubic operation is not adapted to all cases. That it is the best for a certain number of cases, there can be no doubt. For a very large stone, too large to be brought through the pelvis without tearing and bruising the soft parts, where there is a deformity of the pelvis, or an injury of the limbs which will not permit of their being brought into the proper position for operation, he has no doubt that it is the better operation to perform.

But there are dangers which attach to this operation, which are greater than any that attach to the perineal section. First, there is the danger of injuring the peritoneum, though that is not great. There is danger from the very manner in which the operation is performed, the distention of the bladder, the distention of the rectum, and then there is a remote danger of hemorrhage. Nor do the statistics bear out the claim that it is the best operation. Further, statistics are always uncertain. If he remembered correctly, the essayist had stated the ratio of deaths as 11 in 120; other statistics give it as much higher. Dr. Gross's statistics state it as 1 in about 4½. He did not think that we can regard the operation as so innocuous as Dr. Dennis did. That we can safely reach the bladder by this method is certain; that we reach it at the best point is another thing. There is no reason that, in cases of stone of moderate size, we should not reach it by passing through the perineum. The lateral operation is so safe as to be attended by almost entire success in children. As a matter of course, when we advance in life the mortality is greater, for, as a rule, the stone is larger in size. The bladder is easily reached; we reach it at a part where it is naturally most easily drained, and at a point where the wound is readily recovered from.

Then again, the operation which he regards as the best, and one in which we can reach the bladder more easily, in a shorter distance, with less hemorrhage, is one where the incision is made directly in the median line, in the raphé, which is merely a seam holding the other parts taut, and which, when divided, permits dilatation of the parts on either side, to almost any extent. There is a considerable danger, however, in the median operation of the neck of the bladder being firm and resisting, but this can be readily overcome by making a little incision on either side into the prostate gland, dividing the gland and the mucous membrane, and when this incision of three lines on either side has been made, the

parts can be opened up to a sufficient extent to remove any stone which can be brought out of the pelvis. It is sometimes said that an incision cannot be made in the median line large enough to bring out a stone of very large size; that if large stones are brought out of the median opening, they bruise and tear the parts so as to cause infiltration of urine and the consequent bad results, but he showed a few stones that he had brought out through the three-line incision with dilatation, and whether the soft parts were lacerated or not, the patients got well. He produced several calculi of remarkably large size, one being as large as a goose's egg. The largest stone, he remarked, would have been better removed by the suprapubic method, as the patient made a tedious recovery. The median operation is certainly simpler and safer than the suprapubic. If the stone is so large that it will tear the perineum, there is no reason why we cannot pass in an instrument through the opening into the bladder, and crush it previous to extracting.

The world owes a debt of gratitude to Dr. Bigelow for litholapaxy. There is no doubt, however, in his mind whether a clean incision with the removal of all the stone at once, would not present a greater amount of relief—*i. e.*, a less mortality—than would litholapaxy. He then narrated the circumstances which led to his adopting the median operation, which is substantially that of Civiale. Previous to this, he had operated on 45 cases; 40 of them were done according to the old method of Dupuytren, with the lithotome. Since he had adopted the method of Civiale, taking all cases, and not confining it to children, some being children, some adults, some old men, he had operated on 74 consecutive cases without a death. Then two deaths followed, in men of twenty-two years. One had a pelvic abscess, which ruptured in the operation, and the other was a scrofulous subject. Since that time, 45 cases have been operated upon, with one death. That patient died of general tuberculosis three months after operation, with the wound ununited, but with no trouble in the bladder whatever. The mortality of the operation is very light.

In conclusion, he expressed the belief that if the cases are suited to the operation, and the operation is skilfully performed, it can be done with no mortality. Six of his cases were old men, over sixty years of age, and all recovered.

DR. D. HAYES AGNEW said that, as Dr. Briggs had remarked, we cannot tie ourselves to any one operation. Every case must be a case that stands by itself. In reference to the suprapubic operation, he had always said that he did not see the advantage of getting on top of a house to get in, when you can get in on the ground floor. The median operation is unquestionably the safest of all operations in the perineum. Nothing of any importance is divided. The only damage likely to be caused in extracting a large stone is to the neck of the bladder, and that can be corrected by a little nick made upon either side which admits of expansion of the wound to almost any extent that is necessary for the extraction of an ordinary stone. Where the stone is found by exploration with the finger to be one of great magnitude, and yet one which should come through the perineum, it is well to divide a little on either side of the neck of the bladder, and convert what would be a lacerated wound into an incised one, which is always less dangerous.

There is still another feature, which is likely to make this operation even less dangerous than heretofore. That is the use of antiseptic solutions, substituting the warm water which used to be employed by a weak solution of the bichloride. The cases in which the suprapubic operation should be used, are those in which the stones are of very great magnitude; so that, when we come to sum up this whole matter in the future, as we will do, the profession will settle down to the old operation. Still he thinks that we should adhere to the old maxim, "Try all things; choose the good."

DR. J. R. WEIST had operated a few times for stone by other methods before, but since he was acquainted with the operation of Dr. Briggs, he had invariably followed it. He felt so well pleased with his successes, all his patients having recovered, that he was indisposed to change for an operation which he was led to believe requires more care and a higher degree of skill. It would be remembered that the essayist was particular to give very specific directions as to making the incision, he also spoke of the danger of going too far up, the danger of going too far down, too near the pubis, all of which conveyed the impression that the operation is one requiring great experience and care. All of his patients, he continued, with one exception, have been old. While he was willing to admit that there are cases in which a resort to the suprapubic operation would be proper, still he believed that the median bilateral operation is preferable, and that it is a safer operation even than crushing the stone. In the report of Dr. Vanderveer yesterday, he had observed that in some instances in which he had very carefully washed out the bladder, the autopsy revealed the fact that he had not succeeded in removing all the fragments.

DR. WILLIAM A. BYRD remarked that there was no occasion for tearing the soft parts in extracting a large stone through a perineal opening, providing the stone be crushed. For this purpose he recommended an instrument with short thick blades, capable of exerting great pressure, without risk of including the walls of the bladder in its grasp.

DR. MUDD remarked that the median lateral operation had been followed by such successes that it seemed to him the last of operations to be displaced; but with the introduction of litholapaxy there came a revival of the suprapubic operation, and to this, he thought, is due, more than to any other circumstance, the attention which has been given to the latter operation. That it is a valuable operation for exploration or for the removal of a very large stone he agreed, but that it is better than the other operations he did not believe.

In the discussion yesterday the proper test of the value of this operation was referred to—that is, its applicability to those cases of chronic cystitis with firmly contracted bladder. He had in his possession a specimen in which the bladder was very small, not capable of containing more than two ounces of fluid, the walls being from a half to three-fourths of an inch thick and so rigid that they would break before they would yield. In this instance he made the lateral operation and consequently lost the patient.

In another case in which he had conducted a post-mortem in an old man who had suffered for years from stricture, he found a very firm, hard bladder. In another case a bullet had passed entirely through the

bladder. The viscus had been operated upon and explored by the perineal method. He found an injury in the floor of the bladder through the base, on the left side. The patient had a severe and purulent cystitis. Another induration was felt in front extending above the pubic bone. It was so rigid, and dense that no impression could be made on it through the abdominal wall. Suprapubic cystotomy was made. Upon passing through the abdominal wall in the median line, a firm, dense, fibrous thickening of pyramidal form was found resting upon the pubic bone. Into this he made an incision but found himself unable to separate the edges of the wound so as to get access to the bladder, although the latter viscus was easily distended. The sound in the bladder reached the abdominal wall above the induration. After exposing quite fully, as he thought, the bladder wall, he made an incision and found that he had punctured the peritoneum. Opening up more freely the cavity he pushed his finger on and exposed the bladder, made an incision into it and explored it with the finger. He accomplished nothing by the operation. He found no difficulty in closing the wound and the patient made a good recovery.

DR. J. COLLINS WARREN has seen two cases of suprapubic cystotomy within the past year, one for a stone of large size, the other for a tumor of the bladder. There did not seem to be any difficulty in the operation on anatomical grounds. Both cases recovered. The sound was not required in either case. He had also had a case which illustrated the advantage of this operation. The patient was one who had been operated upon for stone by the father of the speaker, thirty years ago, by the bilateral method, and came under his care suffering again from symptoms of stone. Upon examination he found a calculus lying in a cul-de-sac on the distal side of the cicatrix in the bladder wall. It was removed by perineal section and the man recovered. He had, however, thereafter, ejaculation of semen into the bladder entirely.

He had in one case performed vaginal cystotomy. He found no danger of the production of vesico-vaginal fistula. It is only in cases in which a large amount of the vaginal wall is destroyed that there is danger of a fistulous opening remaining; an incised wound of the wall readily heals. For large stones suprapubic lithotomy may be resorted to, although litholapaxy is a good operation, performed many times in Boston. It is an operation which, however, is not required in females. Operators have never had any difficulty in Boston, he concluded, in getting out the fragments of stone after litholapaxy. A good deal depends upon the method of using the evacuator, it should be used slowly and cautiously.

DR. T. R. VARICK thought that the size of the stone had been made a good deal of a bugbear in regard to the extraction through the perineum. He reported the case of a boy of fourteen who had suffered from symptoms of stone for seven years, and upon whom he operated by the bilateral method and extracted entire a stone weighing seven ounces and four scruples, as large as an ordinary goose's egg. There was no perceptible laceration of the soft parts and the boy made a progressive recovery. That seems to controvert the idea of Sir Henry Thompson that no stone weighing more than three ounces can be removed through the

perineum. The operation just reported was made on the 9th of December and the boy left the hospital on the 30th of December, well. The speaker makes a practice of applying hot water to the wound immediately after the operation, both as a styptic and as an antiseptic, using a sponge dipped into water just below the boiling point.

DR. D. W. YANDELL said that, in the main, the ground occupied by Dr. Agnew exactly expressed his views of the subject. His own experience amounted to a total of 106 cases; of lithotomy 92 cases, of lithotripsy 8, and of litholapaxy 6. He did not feel inclined to change to the suprapubic operation. It did not strike him as an operation that is any better or any safer, except as to virile powers. Nearly all his cases were in young persons. In the cutting operation his losses had been seven per cent., without any returns of the stone. In the eight lithotrities he had had two returns, and the same number of returns in the six litholapaxies. Up to date he considered the operation of Dr. Briggs the best that can be made, and preferred any perineal section to the suprapubic.

DR. JOHN B. ROBERTS remarked that we yesterday heard only one side of the operation; whereas, to-day, we hear only the other side of it. The truth would probably be found in the median line. For his own part, he could not change the opinion he had expressed three years ago, when he said that the high operation is certain to become an important one. The discussion this morning has been almost entirely with reference to stone, without taking into consideration its applicability for exploratory purposes, for tumors of the bladder, etc. Is not the suprapubic operation in reality the better; is it not the safer operation? In regard to treating stricture of the urethra by the suprapubic operation, he thought it rather a severe operation to attempt. Aspiration will generally, on the second or third day, at least, result in getting an instrument into the bladder.

DR. J. E. MICHAEL thought that we should consider further the remarks of Dr. Packard with reference to the evacuation of retained urine. As to this or the same operation for the relief of stricture he thought the latter speaker had gone too far. Opening the bladder by the "ground floor," as Dr. Agnew expressed it, is always simple, and seems to have many advantages over the suprapubic method. He thought that suprapubic aspiration is all that is necessary for the immediate relief of the retention, and the true indication in prostatic cases is the use of the soft catheter. The use of suprapubic cystotomy in these cases simply exposes the patient to the risk of two operations where only one is necessary. It seems more sensible and more just to the patient to perform the perineal operation at once. With reference to the suprapubic operation for exploratory purposes, and in some cases for foreign bodies, there can be no question as to its being proper, but for prostatic trouble and for most cases of calculus, the perineal section is better. He had performed the operation nine times without a guide and had not lost a case.

DR. VANDERVEER thought the remarks of Drs. Michael and Yandell in reference to the paper of Dr. Packard were correct. He had twice made the perineal operation, once for exploration and once for chronic cystitis, in which cases, if he had it to do over, he would

use the suprapubic method. He recognized the correctness of Dr. Warren's advice to remove the débris slowly, and begged to remind the latter of the fact that he had only once experienced difficulty in the extraction of the fragments. In that case the crushed stone appeared to form a kind of plug which completely clogged the tube. The other case was one in which the instrument broke. If the removal is attempted with too great rapidity, there is danger of drawing in the bladder wall and causing injury. Dr. Yandell struck the keynote, when he said we have no one method of operating in all cases. Dr. Agnew also expressed the truth in an admirable manner. Of his six cases, five were operated upon by the median bilateral method, with the rectangular staff, and he thought that hereafter he would always use this staff.

It is too soon for us to collect statistics on this operation. Dr. Byrd has had admirable success with the crushing instrument, and thinks that he can crush any stone, but crushing through the perineal opening is a difficult matter on account of the possibility, almost certainly, of doing injury to the soft parts. Sir William MacCormac insists upon closing the wound in the bladder if it is possible. This is, however, contrary to the view expressed in Dr. Warren's paper. In conclusion, the speaker expressed his preference for aspiration of the bladder for retention of urine over the suprapubic operation.

DR. CHARLES B. NANCREDE then read a paper entitled
 SHOULD LAPAROTOMY BE DONE FOR PENETRATING
 WOUNDS OF THE ABDOMEN INVOLVING VISCERA?

His chief object in presenting this paper he said, is a medico-legal one. A few years since, the counsel for the defense in a famous murder trial asserted that the examination of the track of a bullet with a probe in a penetrating gunshot wound of the abdomen had turned the scale toward a fatal issue, and cited many eminent authorities, in support of this view, and urged an acquittal of his client of the crime of murder in the first degree. At present the tendency seems toward active interference, toward operations which, in the hands of the most experienced, cannot be denied to have a certain mortality *per se*, and which, done promiscuously, by those inexperienced in abdominal surgery, will undoubtedly tend to render death more certain. Laparotomy for these injuries has been generally endorsed by the American Medical Association; in a most emphatic manner, by the New York State Medical Association, at its last meeting, and by the Philadelphia Academy of Surgery. Nevertheless, protests have appeared in the journals from time to time, and he felt impelled to ask the Association to express an authoritative opinion which may serve as a precedent for appeal.

The questions which must be decided are:

What are the tendencies of an injury; are they toward recovery, or toward death? When death takes place, what are its causes? When recovery occurs, what conservative processes occur? How likely are these conservative processes to take place, and what favors or prevents them? How reliable are unaided natural methods compared with those art affords; and should they be imitated by the surgeon or avoided? Finally, what are the dangers inherent to the operation of laparotomy, and what advantages does it afford?

He then reviewed the experiments of Wegner and Grawitz, since in them he found the explanation of certain otherwise inexplicable clinical facts and a clear indication of the causes of the complications especially dreaded after belly injuries or laparotomy, and how these dangers may be averted. The experiments, he thought, demonstrated that the theory of gynecologists is true, that operations through the peritoneum are safer than most operations in the daily experience of the surgeon, since many of the microorganisms can be introduced with impunity into the peritoneal cavity, and the ordinary germs of decomposition can produce suppuration only in the presence of certain conditions which can be avoided. They also indicate the importance of thorough cleansing of the wound and the removal of all foreign matter.

What are the tendencies of the disease, toward recovery or death? Examination of the only statistics of sufficiently large size shows that a fraction under eight per cent. of recoveries follow penetrating wounds of the abdomen, but of these some doubtless sustained no visceral injuries, as is not uncommon. Others, perhaps, there were, the walls of whose hollow viscera were penetrated obliquely; others again in whom the alimentary tract was wounded in those parts which possess an anatomical arrangement unfavorable to the extravasation of their contents. After penetrating abdominal wounds, as after every other injury, however severe, there are certain conservative processes initiated which occasionally succeed unaided by art; yet from an impartial consideration of the above facts, it appears that when visceral wounds undoubtedly exist, the tendency of these injuries is invariably toward death, recoveries being so rare as to be regarded and reported as surgical curiosities.

What is the cause of death? Hemorrhage in itself is rarely fatal, but may occur to a dangerous extent, especially in the young or the aged, and that, too, from vessels of a size to be readily considered insignificant, were they not situated in a closed cavity. Death is, however, due in nearly every case to septic peritonitis caused by the extravasation of flatus, feces, urine, or bile, possibly also by fragments of soiled clothing. When recovery takes place, what conservative processes occur? The feces, fluids, gases are absorbed without causing either local inflammation or systemic infection, and a limited adhesive inflammation results which is just sufficient to glue the injured organs to the abdominal wall, or to a neighboring viscus. What favors or prevents these conservative processes? The absence or slight extent of flatulent, fecal, urinary, or biliary extravasation; the absence or slight amount of effused blood or serum; a favorable relation of the wounds with reference to neighboring viscera or the abdominal wall, providing for free drainage in the exceptional cases mentioned in this paper; valve wounds, and above all, an antiseptic condition of the peritoneal surfaces of the wounds and the immediate environment, since without these no reliable limited adhesive inflammation can occur; and partial or complete arrest of intestinal peristalsis—*i. e.*, rest—admitting the most perfect permanent coaptation of the wounded peritoneal surfaces which is feasible—all favor the conservative processes, while the reverse prevents them.

What are the dangers of laparotomy? Shock is all that we need dread.

The advantages of the operation are manifold. Thus, we can either forestall septic peritonitis or reduce its dangers to the minimum; we can prevent septicaemia; we can arrest hemorrhage; we can substitute for adhesions of doubtful permanence, certain methods which secure the escape of injured portions of the gut into the lumen of the bowels; we can prevent the fatal result which must follow the casting off of the decomposed slough, of a wounded portion of the omentum or mesentery into the general peritoneal cavity; we can restore the continuity of the gut; we can avoid the risk of fecal fistula; we can remove the hopelessly wounded kidney or spleen and repair the injured pancreas or liver.

With regard to the objection that all of the symptoms of perforation of the bowel are fallacious, except those of fecal or gaseous extravasation, he referred to four cases reported by the President, from which he inferred that even punctured wounds of the abdomen, without penetration of the viscera, are better treated by exploratory incision than by the expectant plan of treatment, provided the operation be done with due care.

He then reviewed briefly the symptoms which are relied upon by most authors as evidence of the perforation of viscera, as the extravasation of bile, urine, feces, gases, repeated vomiting, the passage of blood in quantity per anum, etc. Among the more important contraindications to the operation, he mentioned profound shock as the most important. If, because the patient has been seen too late, a generalized, well-defined peritonitis exists, laparotomy is strongly contraindicated.

With reference to the proper time for the operation, he said that it should be done at the earliest possible moment the condition of the patient will warrant it.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

DR. C. H. MASTIN, Chairman of the committee appointed at the last annual meeting of the Association, reported a series of resolutions adopted by the committee in regard to the proposed American Congress.

Resolved, 1. That it is desirable that the following societies, viz., the American Surgical Association, the American Ophthalmological Society, the American Otolological Society, the American Neurological Association, the American Laryngological Association, the American Gynecological Association, the American Dermatological Association, the American Climatological Association, and the Association of American Physicians, shall arrange for a conjoint meeting in the city of Washington, in the month of September, 1888, and subsequently at intervals of three years at the same time and place.

2. That this arrangement shall not interfere in any way with the autonomy of each of the special societies, and that each society shall retain the right to withdraw at any time from this joint scheme.

3. That the special features of the meeting shall be the joint assemblage of the special societies on two evenings during the session, on one of which there shall be an address delivered by the President of the conjoint meeting, and on the other there shall be a communication by a referee and a coreferee on some subject of general professional interest.

4. Each special society approving of this report is invited to appoint one representative (with an alternate) and that the representatives so appointed shall constitute an executive committee to serve for one year, and with power to elect such officers for the first conjoint meeting as may be deemed necessary, to prepare a programme for such meeting, to make all the other necessary arrangements and to prepare and submit a plan of organization for future meetings.

5. That all expenses connected with the conjoint meetings shall be apportioned equally by the executive committee among the societies participating.

The report of the committee was received and the resolutions adopted.

Dr. C. H. Mastin was appointed as representative and Dr. J. Ford Thompson as alternate on the proposed Executive Committee.

AFTERNOON SESSION.

DR. R. A. KINLOCH reported

A CASE OF GUNSHOT WOUND TREATED BY LAPAROTOMY, which will appear in full in an early number of THE MEDICAL NEWS.

DR. W. W. KEEN then presented a paper on

PISTOLSHOT WOUND OF THE ABDOMEN: LAPAROTOMY, NEPHRECTOMY, DEATH.

(See THE MEDICAL NEWS for May 14, page 533.)

DR. P. S. CONNER remarked that we all now agree that, if an operation is to be made it should be made in a certain definite manner, the method which is most tried, most reliable, and most certain in its results. The question is not how to close the wound in the intestine, but when to open the abdominal cavity in order to find the intestinal puncture. We know that in the great majority of cases of perforating wound of the intestinal cavity death results either from shock, from hemorrhage, or from extravasation and peritonitis. We know further than this that a certain, though limited, proportion of cases recover if they are let alone. We know that if the operation is made it by no means necessarily saves the patient, and in the presence of an actual case the point to be determined is whether it is advisable to add to the existing traumatism another one. If extravasation of bile, blood, urine, or feces occur, however, there can be no question of the propriety of opening the abdomen; but if we simply know that a gunshot or stab have penetrated the abdomen, it is very difficult to determine whether extravasation have occurred or not. There is not a single symptom that can be relied upon. On the other hand a bullet may pass through the stomach itself, or still more some portion of the intestinal tract, and no blood or other fluid may have been extravasated. Hemorrhage from the bowel does not mean anything. Shock does not indicate anything. We would naturally suppose that an individual who is struck in the abdomen would have profound shock, but every one of us has seen cases in which the shock is comparatively trivial. He has seen cases of more profound shock from a wound of the hand than from a gunshot wound of the abdomen. The shock, again, may be merely nervous in character, and not that from hemorrhage. Further, the condition of the patient may be good and it may be bad. He thought that con-

siderable reliance may be placed on the observation of a profound depression of the temperature, and he still believes that if the temperature is below normal for five or six hours after the receipt of the injury, perforation may be supposed to be present, but there is still room for doubt.

If the intestine is injured should the abdomen be opened? Theoretically, yes. Practically, we know that many cases are no better off after opening the abdomen than they were before. A great deal of harm may be done by opening the abdomen where no injury is found. It is a very different thing to open the abdominal cavity where the peritoneum is normal and healthy, from opening it where the peritoneum has been pressed upon for a long time by a tumor. Many of these cases involve legal questions, and, as has been intimated, if the patient die after surgical interference, it may be the means of permitting to escape a criminal who should be made to suffer his just punishment. If the operation be delayed eighteen to twenty-four hours the chances for recovery are slight.

He then referred to a case which he had seen in the hands of Dr. Dandridge, in which eleven wounds of the bowel were found and accurately closed, without benefit. He had himself, on two occasions, sewed up knife wounds of the intestine so closely that water could not be forced through the openings at the autopsy, which had to be made within twenty-four hours afterward. From all this he concluded that for the treatment of penetrating wounds of the intestine we are not yet justified in laying down any rigid rule that this operation must be done in all cases. We want light, therefore, if possible, upon the diagnosis of these cases. If we can in any possible way ascertain, without opening the abdomen, that perforation has or has not occurred, we want to know it. At the present time the diagnostic signs are very uncertain. Of these cases, therefore, a great many will be lost because of the delay which is almost inevitable, from the present state of our knowledge.

DR. MOSES GUNN remarked that we are about as much in the dark as ever regarding the important matter of diagnosis. He reviewed the early history of the operation as done for ovariectomy, of which it was at one time said that the operation was a lottery in which the drawing was a blank. Then it was explained that the successes which followed it were due to changes in the structure of the peritoneum. The peritoneum was thought to be particularly susceptible to inflammation, and when the ovariectomists brought forward their successful cases of operation, where there had been extensive adhesions, the doubting members said that the peritoneum had undergone some change. Then antiseptic surgery developed, and it was found that the time for ovariectomy was early. It was found that the peritoneum, with all its pristine individuality, could be handled antiseptically without danger. Finally, Sims came forward with the view that the operation should be made for traumatism. With regard to this application of the operation, although only a few years have elapsed since its introduction, he thinks we are safe in saying that it should be made. Cases occur in which the danger of perforation of the intestine has been great, and laparotomy is a safe method to pursue for its relief. We can all call to mind cases in which there was every

possible indication that the intestine was perforated, and yet the patient recovered; but we could not say positively that the intestine had been perforated. He then referred to an insane woman who stabbed herself with a scissors, drew forth eleven inches of intestine, cut it off, and recovered after the wound had been properly closed. He could not answer the question how to make a diagnosis of perforation, but confessed a weakness for diagnostical laparotomy.

DR. DAVID PRINCE reported a case of laparotomy for gunshot wound in which, after the most careful search, a perforation of the colon was found back of the liver, where it becomes transverse. The patient made a slow but perfect recovery. He expressed preference for making the incision, not in the median line, but directly over the point of entrance of the missile.

DR. T. G. RICHARDSON stated that he desired to make a criticism upon the paper of Nancrede, without casting any slur upon the operation of laparotomy. The essayist is apparently in favor of making laparotomy upon every case of gunshot wound or other injury of the abdomen; he was particular to state, however, that it should be made only by a skilful surgeon. If we restrict the operation to this class of operators, a great part of the benefit of the operation is taken away, for the majority of cases do not fall directly into the hands of those whom we call experienced and skilful surgeons. His own experience demonstrated to him that a large majority of cases of gunshot wound of the abdomen get well without operation. Of 31 cases of penetrating knife wound, 24 recovered, 7 died. On the other hand, however, of 37 cases of gunshot wound only 17 recovered, 20 died. Adding these together, gives us 68 cases of penetrating wound, of which 41 recovered, 27 died.

DR. D. HAYES AGNEW desired to place himself on record, for he had very strong convictions with regard to this operation. Where we have a reasonable degree of evidence that we have a wound penetrating the intestine, especially a shot wound, it is our duty to open the abdomen. We are not to be deterred because of the possibility of some legal technicality if the case comes into court. We are to do our duty without reference to consequences.

DR. N. P. DANDRIDGE reported a case of gastrostomy in which the operation was for stricture of the œsophagus, caused by swallowing washing fluid, about six months after the accident. The patient was emaciated to the last degree, and was at the time of the operation unable to swallow anything. The condition of the child was so desperate at the conclusion of the operation, that it was considered advisable to introduce at once nourishment by means of the aspirator into the stomach. The child was nourished for several days in this manner, the quantity injected being gradually increased, until four or five ounces were thrown in at a time. The child did well until she took measles; then the wound began to ulcerate, and she finally died of erysipelas.

DR. JOSEPH RANSOHOFF reported two cases which had come under his observation in which the question of laparotomy was of great importance. The first case was that of a young man who had suffered from stricture of the rectum for two years. The stricture was high up, so that it could be just reached with the finger. By a process of gradual dilatation he had become able

to pass the largest size of the soft rubber bougie. He then used hard rubber bougies, choosing the largest of the nest of bougies made in England. The ninth time he had passed it, he experienced no difficulty, but the patient complained of a good deal of pain. Two hours later he had severe pain in the iliac region and was vomiting. He decided to make an exploratory incision, and telegraphed to the patient's physician to that effect. A physician and a surgeon were called in consultation. The physician did not think the time for laparotomy had arrived, and the surgeon was opposed to it *in toto*. The physician twenty-four hours later concluded the time had arrived, the surgeon still opposed, and it was abandoned. The patient died six days after the accident. A post-mortem was not allowed. The question in this case is whether the result would have been different had the abdomen been opened. In regard to it, he felt no little regret, inasmuch as he feared that the death of the patient might have been to some extent the result of his efforts, and was permitted to occur without any attempt at prevention.

Only last Sunday he was asked to see a man who had been shot in the back. He had received a number of wounds of large size, entering just above the ilium, and, apparently, taking a forward course. He saw the patient about an hour after the receipt of the injury. He was in good condition, pulse 84 to 90, and full. He had vomited, probably owing to the fact that he had indulged largely in beer. There was considerable pain. Next morning, Dr. Conner was called in consultation. The condition of the patient was such as to render the operation out of the question. Two hours later he was moribund and died soon after. The post-mortem showed that the laparotomy would not have been of any service. In the case of stricture of the rectum he thought laparotomy would have saved the patient, although no autopsy was made. The patient was too young to render the presence of cancer at all probable.

DR. NANCREDE did not consider that a prominent depression of the temperature is a symptom in these cases. A healthy peritoneum does not resent a laparotomy, for it is able to dispose of a large amount of feces, urine, bile, blood, and, to some extent, also of septic microorganisms. But the moment the vitality of the peritoneum is impaired, just that moment the dangers of the operation are increased. In regard to diagnosis, he thought that a penetration could readily be determined by a careful incision of the abdominal wall down to the peritoneum, following the track of the ball, and that in many cases the result, where no perforation was found to exist, would be better than if the patient had been let alone. By the term skill he had meant to imply a knowledge of what was to be done and an attention to detail, both of which were certainly requisite in the performance of this operation. He finally objected to the custom of giving large doses of opium after all operations, as introduced by Alonzo Clarke and practised by many.

DR. KINLOCH stated that there was one thing in the discussion which had gratified him more than anything else. That is, that two distinguished members of the Association have said clearly and authoritatively that laparotomy, under proper circumstances, should be performed. Some who have discussed the question, however, are inclined to think that the great question is that

of diagnosis. He was opposed to the practice of waiting too long. It was the uncertainty of diagnosis that for a long time checked the progress of surgery in the operation of ovariectomy, and where is it now? It was this fear that checked the progress of surgery in regard to the treatment of injuries of the brain, and where is it to-day? This is the same reasoning that the surgeons of old advocated. Many of them advised ovariectomy, but none of them performed it, and we should make a difference between the surgery of the past and that of the present. In regard to the question of whose duty it was to perform the operation, he applied the words of Dr. Agnew. We should do our duty, and because a poor negro is shot in a cotton field and the nearest doctor is called, we must not say that he shall not attempt to save a life because he is not a skilful surgeon. He then narrated his first experience with the operation, in a Confederate hospital during the war. When he had finished, he found that his older assistant had left the room in order not to witness his inhumanity. After the patient recovered, however, he numbered that older physician as one of his warmest friends.

(To be continued.)

NEW YORK SURGICAL SOCIETY.

Stated Meeting, May 11, 1887.

THE PRESIDENT, CHARLES MCBURNEY, M.D.,
IN THE CHAIR.

CASE OF FRACTURE AND DISLOCATION OF THE ASTRAGALUS.

DR. STIMSON showed a portion of an astragalus, and read the following history: Man, about twenty-eight years old, in a fit of drunken delirium jumped from a third-story window, and was brought to Bellevue Hospital, April 27, 1887. I saw him the next morning, about eighteen hours after the accident. There was a large tumor below the right patella and a row of abrasions along the left shin, and a small tumor below the left patella. The left foot and lower half of the leg were swollen and discolored, the foot at right angles to the leg and capable of some flexion and extension, and without deviation. A marked prominence at the inner ankle, over which the skin was tightly drawn and livid, was at first thought to be the internal malleolus, and the foot seemed to be carried bodily to the outer side, but on palpation the prominence was found to be behind and a little below the malleolus, and to have a curved border running backward and outward; below this border could be felt a broad surface, that was curved backward and inward, and flat downward and inward, in front was an abrupt depression. The scaphoid was normally placed in respect to the malleolus, and no depression could be felt behind it in the situation of the head of the astragalus, although the swelling was such that the examination was not deemed very trustworthy. The perineal tendons were displaced forward, lying upon the outer surface of the external malleolus. The relations of the fifth metatarsal, cuboid, and calcaneum appeared to be normal. The dorsalis pedis artery was beating, the posterior tibial could not be felt.

The diagnosis of fracture of the neck of the astragalus with dislocation backward and inward, and inward rota-

tion of the body was made, and an attempt was made to reduce under ether by flexing the knee, making traction downward upon the foot, and pressure outward and forward upon the projection behind the internal malleolus. This failing, an incision three inches long was at once made backward and downward from in front of the malleolus, its centre corresponding to the most prominent part of the projection. The upper articular surface and outer edge of the astragalus presented in the wound, and the body of the bone was found lying below and behind the malleolus; its broken neck directed forward and inward, its upper articular surface looking inward and downward, its posterior border close to the tendo Achillis, and its inferior surface close behind and below the posterior border of the end of the tibia; transverse fracture had taken place at the junction of the body and neck, and the body had been completely dislocated backward and inward, with rotation inward of about 120 degrees about its antero-posterior axis, and about 45 degrees inward about its vertical axis. The tendons of the tibialis posticus and flexor longus digitorum were torn from their sheaths and crossed the inner surface of the malleolus above the astragalus. The posterior tibial artery was pressed backward and separated from the tibia by the interposed posterior portion of the body of the astragalus. Exploration of the joint showed the head of the astragalus in place, and absence of injury to the tibia or fibula. The lower tibio-fibular joint was not injured. The fracture ran from the anterior border of the trochlea downward into the groove occupied by the interosseous ligament.

The body was easily removed, as all its ligaments and connections had been ruptured except a part of those attached to its posterior border. The wound and joint were thoroughly cleaned, a drainage tube inserted, the incision loosely closed by two silkworm gut sutures, the foot and lower part of the leg enveloped in iodoform and bichloride gauze, and a plaster-of-Paris bandage applied over all.

On the following day the patient's alcoholic symptoms were much less marked, and his condition good. On the third day a fenestra was cut, and the tube removed; the wound was dry, the swelling less, and everything looked favorable, but three days later he developed pneumonia, and died on the ninth day after the accident.

To this record of the case he added a brief mention of the few similar cases that have been reported. They are those of Denonvilliers, Lejeune, MacCormac, Legros Clark, Pichoree, and Cheever. In the first two the dislocation was directly backward; in the others, backward and inward, as in the present case. Of Denonvilliers, he had only the brief note given by Malgaigne: the body of the astragalus covered the calcaneum at right angles, and its trochlea appeared through the skin below and behind the internal malleolus; he removed it, but the patient died. Of Lejeune's and Pichoree's, the quotations by Delorme (*Dict. de Med. et Chir. Prat.*, vol. xxvii., p. 643) and Poincet (translation of Hamilton's *Fractures and Dislocations*) are even briefer; of the first it is said only that the dislocation was compound; of the second only that after two unsuccessful attempts to reduce, including division of the tendo Achillis, suppuration ensued, and the limb was amputated.

MacCormac's¹ patient was injured in the fall of a platform; the character of the injury was not recognized, and after rest for some weeks in bed, he was able to walk well and continue his occupation as bricklayer. Two years later MacCormac removed the leg because of disease at the knee, and made a careful dissection of it. The foot was stiff, at a right angle with the leg, and without deviation. The astragalus had been broken at the neck, and the body had been so displaced and rotated that it lay behind the tibia, and a little to the inner side, its trochlear surface looking inward and backward, its posterior border in contact with the tendo Achillis, and its broken surface looking downward and forward. The internal malleolus had been broken, and had reunited, and the astragalus was connected with it by bony union. The tendons of the tibialis posticus and flexor longus digitorum were displaced inward and forward, lying on the inner surface of the malleolus, that of the flexor longus pollicis was separated from the tibia by the body of the astragalus, and lay upon the trochlear surface of the latter. No mention is made of flexion of the great toe, such as existed in Cheever's case, and in others in which the unbroken astragalus was displaced backward and inward, but one of the accompanying figures shows the terminal phalanx flexed.

MacCormac reports also a case treated in 1863 by Legros Clark, which he himself had an opportunity to examine twelve years later; he found the body of the astragalus in a position identical with that of his own case, and supposed there had also, probably, been fracture of the neck. The patient had full use of the limb, walking without any lameness.

Cheever's² patient, a man thirty-two years old, was injured in a fall of about twelve feet. There was a very marked, partly rounded, partly sharp projection of bone between the inner malleolus and the heel, and a depression beneath the outer malleolus. The tendo Achillis was tense and shortened over the unnatural prominence of bone which lay between the inner ankle and the heel. The heel was drawn up; the mobility of the ankle-joint was greatly diminished. The last joint of the great toe was strongly and immovably flexed at a right angle. After failing to reduce by traction under ether, he divided the tendo Achillis, then the tibialis anticus and posticus, then the flexor communis digitorum, and finally the flexor longus pollicis at the toe, but the dislocation still remained irreducible. The skin sloughed over the astragalus, but did not expose it, and the ulcer soon healed; in seven weeks the patient could freely move the foot, and in five months could walk with a cane. The divided tendons appeared to have solidly united.

The histories do not make clear the mode of production of the fracture and dislocation, but it seems probable that they occurred while the foot was in dorsal flexion, and by the agency of extreme violence acting in the direction of the long axis of the leg, along the sloping articular surface of the calcaneum, and bringing the tibia and calcaneum closer together, so that the posterior part of the astragalus is squeezed out from between them.

¹ Trans. Path. Soc. London, 1875, vol. xxvi. p. 174.

² Cheever: Boston Med. and Surg. Journ., 1875, vol. 93. p. 237.

DR. SANDS said that he had a specimen similar to the one presented. It was obtained from a patient whom he saw in consultation in Tarrytown, with a fracture and dislocation of the astragalus inward. The fracture was nearly vertical in direction, and was situated just in front of the ankle-joint. The skin over the upper dislocated fragments was greatly stretched. He cut down directly upon the bone and easily removed it. The patient recovered and walked well afterward, but had slight shortening and stiffness of ankle. He thought that there was no advantage in wasting time by trying to effect reduction, because the conditions were so unfavorable; it was better to excise early, especially since the results obtained by modern antiseptic methods were so good. The broken bone acted as a foreign body, and would, if allowed to remain, do injury to the soft parts.

NEWS ITEMS.

THE ASSOCIATION OF AMERICAN PHYSICIANS announces the following programme for its second annual meeting at Washington.

THURSDAY, JUNE 2. *Morning Session, 10 A.M.*—Remarks by the President, Dr. S. Weir Mitchell. Cirrhosis of the Liver in Children, by Dr. R. Palmer Howard, of Montreal. Obstructive Safety-valve Action in the Heart, and direct Functional Murmurs, by Dr. John Guithéras, of Charleston. Pneumatic Differentiation, by Dr. Hosmer A. Johnson, of Chicago.

Afternoon Session, 2.30 P.M.—Discussion on Antipyretic Treatment, introduced by Drs. H. C. Wood, of Philadelphia, and G. Baumgarten, of St. Louis. Cases of Sewer-gas Poisoning, by Dr. Henry Hun, of Albany. A Case of Aneurism of the Abdominal Aorta, by Dr. James T. Dana, of Portland.

Evening Session.—Discussion on Hemorrhagic Infarction, introduced by Drs. W. H. Welch, of Baltimore, and Wm. Osler, of Philadelphia.

FRIDAY, JUNE 3. *Morning Session.*—Bergeon's Method of Treating Phthisis, by Drs. E. T. Bruen, of Philadelphia, and F. C. Shattuck, of Boston. Atrophy of Gastric Tubules; its Relation to Pernicious Anæmia, by Dr. F. P. Kinnicutt, of New York.

Afternoon Session.—Observations on the Employment of Antipyrin and Thallin in the Treatment of Typhoid Fever, by Dr. Francis Minot, of Boston. An Inquiry into the Frequency with which Lead may be Found in the Urine, and on the Symptomatology of Chronic Lead Poisoning, by Dr. James J. Putnam, of Boston. Forms of Typhoid Fever Simulating Intermittent Malarial Fever, by Dr. I. E. Atkinson, of Baltimore.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION will hold its Ninth Annual Congress in the Hall of the Academy of Medicine, in New York, on May 26th, 27th, and 28th. The following papers are announced:

MAY 26. *Morning Session, 10 o'clock.*—Intubation of the Larynx, by E. Fletcher Ingals, M.D., of Chicago. Description of a Modified Laryngectomy, by J. Solis-Cohen, M.D., of Philadelphia. A New Method of Intubation of the Larynx, by Charles E. Sajous, M.D., of Philadelphia.

Afternoon Session, 3 o'clock.—The Pathological Nasal Reflex: an Historical Study, by John N. Mackenzie,

M.D., of Baltimore. Hay Fever, with Results of Treatment, by John O. Roe, M.D., of Rochester. On the Treatment of Atrophic Rhinitis by Applications of the Galvanic Current, by D. Bryson Delavan, M.D., of New York. Myalgia of the Pharynx and Larynx, by S. H. Chapman, M.D., of New Haven. Discussion. Sensory Affections of the Throat, opened by Frederick I. Knight, M.D., of Boston.

MAY 27. *Morning Session.*—Further Researches upon the Function of the Recurrent Laryngeal Nerve, by Frank Donaldson, Jr., M.D., of Baltimore. The Anatomy and Physiology of the Recurrent Laryngeal Nerve, by Franklin H. Hooper, M.D., of Boston. On Certain Measures for the Relief of Congestive Headaches, by William C. Glasgow, M.D., of St. Louis. A Case of Leucoplakia Buccalis: Recovery, by William C. Glasgow, M.D., of St. Louis.

Afternoon Session.—Discussion. The Treatment of Laryngitis in Professionals who are Unable to Rest, opened by J. Solis-Cohen, M.D., of Philadelphia. Glandular and Connective Tissue Hypertrophies of the Lateral Walls of the Pharynx, by Clarence C. Rice, M.D., of New York. The Galvano-cautery in the Treatment of Hypertrophied Tonsils, by Charles H. Knight, M.D., of New York. Note on a Frequent Cause of Nasal Hemorrhage, by Beverley Robinson, M.D., of New York. The Constitutional Causes of Sore Throat, by S. W. Langmaid, M.D., of Boston.

MAY 28. *Morning Session.*—Affections of the Crico-Arytenoid Articulation, by George W. Major, M.D., of Montreal. Cancer of the Larynx, by Hosmer A. Johnson, M.D., of Chicago. A Case of Recurring Laryngitis Hemorrhagica, by C. E. Bean, M.D., of St. Paul. A Case of Stenosis of the Larynx, treated by Divulsion and Systematic Dilatation, by Morris J. Asch, M.D., of New York. The Importance of Local Treatment in Diphtheria, by William Porter, M.D., of St. Louis.

Afternoon Session.—A Comparative Study of some of the Methods of Treatment best adapted to the Relief of Occlusion of the Posterior Nares, by Alexander W. MacCoy, M.D., of Philadelphia. Plaster-of-Paris Dressing for Fractures of the Nose, by J. W. Robertson, M.D., of Detroit. On the Etiology of Deflections of the Nasal Septum, by D. Bryson Delavan, M.D., of New York. Congenital Occlusion of the Nasal Passages, and its Successful Treatment by means of a Novel Surgical Procedure, with a practical demonstration of the Operation.

THE OFFICERS OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, elected at the recent annual meeting for the coming year, are as follows:

President.—Dr. I. E. Atkinson.

Vice-Presidents.—Dr. Charles H. Jones, Dr. James Carey Thomas.

Recording Secretary.—Dr. G. Lane Taneyhill.

Treasurer.—Dr. W. F. A. Kemp.

THE THIRTIETH ANNUAL MEETING OF THE MISSOURI STATE MEDICAL ASSOCIATION was held at Macon City, Mo., on May 10, 11, and 12, 1887. The meeting was highly satisfactory to the members present, a larger number participating, and a larger number of papers were read and discussed than at any previous meeting. The Association passed a resolution appropriating

three hundred dollars to the International Medical Congress. It was decided to hold the thirty-first annual meeting at Kansas City, Mo.

THE MEDICAL SOCIETY OF NORTH CAROLINA held its thirty-fourth annual meeting at Charlotte on April 13th, and the following officers were elected for the ensuing year:

President.—Dr. D. T. Haigh, of Fayetteville.

Vice-Presidents.—Drs. W. T. Ennett, of Burgan; J. B. Dunn, of Raleigh; Thomas E. Anderson, of Statesville.

Secretary.—Dr. Julian M. Baker, of Tarboro.

Treasurer.—Dr. C. M. Poole, of Salisbury.

INTERNATIONAL CONGRESS ON INEBRIETY.—The Council of the English Society for the "Study and Cure of Inebriety," have completed arrangements for an International Medical Congress, to be held at Westminster Hall, London, July 5 and 6, 1887.

The object of this Congress is to present and discuss the problems of inebriety medically, and from a purely scientific standpoint, by the best authorities, thus laying the foundation for a broader and more exact study of this subject.

PASTEUR AND HIS INSTITUTE.—The members of the Committee of the Pasteur Institute have decided to refuse the site offered by the municipality, and to purchase a site beyond Montparnasse Station for 430,000 f. They have also agreed on plans for the erection of four buildings, to cost 600,000 f. About 1,000,000 f. will then remain available, representing a revenue of 40,000 f. This is inadequate, for the calculations made, not only for the treatment of rabies, but for fresh experiments and a laboratory, show that an income of 100,000 f. is necessary. The fund will, therefore, be kept open until this income has been secured. With devotion equalled only by the absence of ostentation, M. Pasteur has written a letter to the committee assigning to the institute the proceeds of his splenic fever treatment and industrial processes, which bring in 25,000 f. a year. This sum added to the one mentioned above of 40,000 f. makes a revenue of 65,000 f., leaving 35,000 f. still to be secured. It is sad to have to add that M. Pasteur himself is seriously unwell, and that his condition gives great uneasiness to those who love and admire him.—*Galignani's Messenger*.

DEATH OF LIEBERKÜHN.—Dr. Nathaniel Lieberkühn, Medical Privy Councillor and Professor of Anatomy in Marburg University, died recently at the age of sixty-five. He was the son of the discoverer of Lieberkühn's follicles, and was a disciple of Johannes Müller, and a fellow-student of Dubois Reymond, Helmholtz, Ludwig, and Virchow. His own researches, which were numerous, were mainly connected with development. He was formerly Prosecutor of Anatomy in Berlin.

RESULTS OF A PHYSICAL EXAMINATION FOR CADETS.—A remarkable showing is made by the result of the physical examination of candidates from the public schools for the appointment of a cadetship at the Naval Academy at Annapolis. The position was offered by Col. L. S. Bryce, member of Congress for the Seventh New York District, to the lads between fourteen and

eighteen years of age, in the district, who should pass the best competitive examination; and, on the 29th of April, twelve youths presented themselves at the College of the City of New York for the trial. The physical examination was made by Drs. Stuyvesant F. Morris, of New York, and Shaeffer, of the Navy, and not one of the twelve was found to answer to the qualifications as regards physique required by the Government for admission to the Academy. Of the candidates, three were rejected for defective eyesight, and four for malformation of the chest or heart troubles, while one was under the minimum stature allowed.—*Boston Medical and Surgical Journal*, May 5, 1887.

THE LACTOCRITE.—The lactocrite, a new apparatus for testing milk, particularly with regard to its value for butter, is the invention of de Laval, also the inventor of the well-known centrifugal separator, which bears his name, and is designed to be used with the latter. The milk is first heated with its own bulk of strong acetic acid, to which five per cent. of strong sulphuric acid has been added. This treatment, continued for seven or eight minutes, suffices to set free the fat of the milk from its emulsionized state. A glass tube with a narrow neck, properly graduated, is then filled with the milk, placed in a suitable holder in a disk which is attached to the centrifugal separator, and the latter set in operation. A complete separation of the fat is then effected in the narrow neck of the tube, where the amount is read off. The instrument is designed to enable creameries using the centrifugal to test the quality of each patron's milk; and it appears to be well adapted to this purpose. Several tests of its accuracy have been made of late. Sexhlet, in the *Milch Zeitung* (xvi. 14), reports that he obtained by it results agreeing within 0.1 per cent. with those of his aerometric method. Sebelien (*Landw. Vers. Stat.*, xxxiii. 405) finds that, if all the directions are strictly observed, the results do not vary at most more than 0.1 per cent., and usually not over 0.05 per cent., from those of gravimetric analysis, but notes that these directions must be carefully followed. Faber (*Analyst*, xii. 6) obtained about the same results. Blythe (*Ibid.*, xii. 34) found in eleven trials a maximum error of 0.14 per cent., and an average error of 0.05 per cent.—*Science*.

PRACTICE OF MEDICINE BY AMERICAN PHYSICIANS IN FRANCE.—For some years past the native practitioners at French watering places and elsewhere have displayed a good deal of irritation at the success of the English and American medical men, who practically exclude them from the emoluments derived from attendance on the wealthy and invalid foreign visitors. This feeling has now taken a tangible form in the promulgation of a law which somewhat enhances the difficulty of obtaining the right to practise on French territory unless the doctorate of one or other faculties of medicine in France be first obtained, a proceeding of some time, difficulty, and expense, except to one who has lived for some years in the country. Hitherto, the English or American practitioner who desired to practise in France contented himself with obtaining a provisional license (*permis d'exercer*) which was practically perennial; or, at most, took the certificate of *officier de santé*, an inferior diploma, but one which enabled its holder to

comply with the law. Until within the last few years, one or other of these *permis* were obtainable on fairly easy terms. Under the new law, however, no permits are to be granted other than those conferred by passing one or other of the legal entrances of the profession. Further, in order to prevent undue competition at the hands of men who might take the *officat de santé*, they are forbidden to practise in the chief towns of departments and arrondissements, and in cities of over 10,000 inhabitants. In all important surgical and obstetrical operations they are required to call in the assistance of a doctor of medicine.—*Medical Press*.

IMPORTANCE OF THE TEETH AS A MEANS OF IDENTIFICATION.—The occurrence of the Prince Imperial's death revived a question which has been somewhat neglected by lawyers and physicians, viz., the importance of the teeth as a means of identification of deceased persons. The late Prince Imperial had been so much disfigured that identification would have been extremely difficult but that the prince had had four small cavities in the first molar teeth filled with gold by Dr. Rottenstein, of Paris, and had met with a slight accident in April, 1876, from a blow on the front teeth, which had made it necessary to fill the teeth a little in order to smooth the enamel. These constituted signs which are unalterable even by ages; and, as careful dentists usually keep a record of such operations, they afford a means of identification which is unerring, and which, as in the present instance, was of great value, and might, under certain circumstances, be of the highest importance.—*American Journal of Dental Science*, March, 1887.

OBITUARY RECORD.—Died of pneumonia, on Tuesday, May 3d, in the fifty-seventh year of his age, WILSON FOX, M.D., F.R.C.P., Physician-in-ordinary to the Queen, and Holme Professor of Clinical Medicine at University College, London. Dr. Fox was well known on this side of the Atlantic by his numerous and valuable contributions to medical science, and particularly by his research into the nature of tubercle, to which he devoted the best energies of his life. By his death the London profession loses one of its most distinguished members.

NOTES AND QUERIES.

THE CZERNY-LEMBERT SUTURE.

To the Editor of THE MEDICAL NEWS,

SIR: Will you kindly publish in the columns of THE NEWS, the *rationale* of the "Czerny-Lembert suture?" I have never seen the stitch, and all the practitioners on this portion of the earth's surface are as ignorant as myself, on this subject.

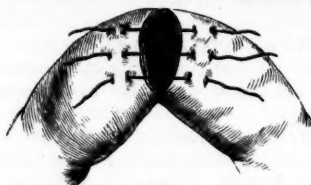
Truly,

S. C. GRAVES, M.D.

GRAND RAPIDS, MICH., May 10, 1887.

The Czerny-Lembert suture is applied in two rows. The first or inner row includes the mucous membrane only, and is applied in the form of a series of simple suture points. The second or outer row includes the peritoneum only, and is applied in the form of Lembert's Suture (see fig.), in which the needle is first made to pick up a fold of peritoneum about one line in width and about three lines from the edge of the wound; a similar fold is then picked up at a corresponding point on the other side of the wound, and then the thread has to be drawn through the two folds and thus carried across the incision; the knot may be tied in the ordinary way. The stitches should not be more than a line apart,

and the whole number required must be introduced before any are tightened. By this suture the serous surfaces are turned in toward the lumen of the viscus and are brought into close contact.



Lembert's suture including peritoneal coat alone.

Of course, when the outer series of sutures are applied the inner row, including the mucous membrane, is entirely covered in.

This suture is employed in closing intestinal wounds, and is particularly valuable in bringing the two serous surfaces of the wound in close apposition, which is necessary for union. The inner row of sutures, advised by Czerny, affords additional security.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 10 TO MAY 16, 1887.

ALEXANDER, C. T., *Lieutenant-Colonel and Surgeon*.—Granted leave of absence for four months, with permission to go beyond the sea, to take effect May 23, 1887.

HARVEY, P. F., *Captain and Assistant Surgeon*.—Granted leave of absence for four months, with permission to go beyond the sea, to take effect June 10, 1887.—S. O. 105, A. G. O., May 7, 1887.

BIART, VICTOR, *Captain and Assistant Surgeon*.—Ordered for examination by Army Retiring Board at Fort Leavenworth, Kansas.—S. O. 107, A. G. O., May 10, 1887.

ELBREV, F. W., *Captain and Assistant Surgeon*.—Ordered for examination by Army Retiring Board at Washington, D. C.—S. O. 109, A. G. O., May 12, 1887.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 14, 1887.

GRAVATH, C. M., *Surgeon*.—Detached from the U. S. Steamer "Michigan."

LUMSDEN, G. P., *Passed Assistant Surgeon*.—Ordered to the U. S. Steamer "Michigan."

ASHBRIDGE, RICHARD, *Passed Assistant Surgeon*.—Detached from the Naval Academy and ordered to the Practice Ship "Constellation."

STREETS, THOS. H., *Passed Assistant Surgeon*.—Promoted to Surgeon.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING MAY 14, 1887.

FESSENDEN, C. S. D., *Surgeon*.—Detailed as Chairman of Board for Physical Examination of Cadets, Revenue Marine Service, May 13, 1887.

STONER, G. W., *Surgeon*.—To proceed to Delaware Breakwater, as Inspector, and to New York and Philadelphia, to inspect unserviceable property, May 12, 1887.

IRWIN, FAIRFAX, *Passed Assistant Surgeon*.—Detailed as Recorder of Board for Physical Examination of Cadets, Revenue Marine Service, May 13, 1887.

FATTIE, J. B., *Assistant Surgeon*.—Relieved from duty at Baltimore, Md.; ordered to Marine Hospital, St. Louis, Mo., May 13, 1887.

THE MEDICAL NEWS will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.

Local papers containing reports or news items should be marked. Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS should be addressed to No. 1004 Walnut Street, Philadelphia.